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Saving Materials—A Threefold Thrift

Business of every kind now occupies a strangely new and unusual position. For perhaps the first time in the history of American business, the man who sells commodities of any class, whether the raw materials of earth or the finished products of mills, has more customers than he can supply.

The demands created by world-war conditions are so obviously beyond the available supply that saving methods involving the exercise of every efficient plan to curtail needless waste are engaging the attention of all thoughtful persons.

The operation of coal mines to yield a fair profit at selling prices as fixed by the Government will thoroughly tax the resourcefulness of all mine owners and managers. The brighter side of this is that such conditions will serve as a stimulus to save and conserve materials and resources as never before. In fact, for some it is only through this medium that the problem can be solved.

In this work the greatest single item that should engage the attention of serious minded colliery managers now is

MATERIALS

TO SAVE in the use of materials and machinery necessary to produce coal is an act of threefold thrift. It means saving for your **Country**, your **Company** and your **Cost Sheet**.

The general manager of a highly efficient mine organization recently conducted a campaign in his concern, the purpose of which was to recover all supplies and materials, such as spare parts, etc., that had been charged out to cost of operations but were still on hand unused. The result, even in that efficiently operated concern, was astonishing. Thousands of dollars' worth of material was recovered and put back in the storehouse accounts. The value was credited to yearly cost. This meant a lowered annual cost and an increase in tangible assets; in fact, it resulted in the proper accounting for the company's operations. But the real significance of this campaign lay in its larger meaning—the recovery of materials that would undoubtedly have been lost outside of the storekeeper's hands. This meant a saving to the Country in avoiding the conversion of raw materials such as iron and coal to make finished products to replace waste.

No mine owner wants his materials wasted at any time. No mine owner can be patriotic and allow

them to be wasted now. The mine foreman who takes more spares into the mine than he can use at that time and allows a portion of them to be lost through being mislaid, covered up or destroyed by rust or corrosion, is, whether intentionally or not, as guilty of wasting the Country's resources as the man who wastes food that ought to go to fighting men or starving peoples.

It will pay the mine operators of America to appoint committees of their best men to inspect every avenue or channel through which materials are handled and used. Storehouses everywhere should be inspected; the caliber of storekeepers should be noted and all avenues of waste definitely closed.

It will not hurt to remember that Safety and Saving Materials are akin—nay more; they are the twin sisters of economy in mine operations. Saving men from unnecessary injury and saving materials from needless waste are in like measure the aim of every right-minded manager. They are both productive of Threefold Thrift—

They save for the **Nation**, the **Company** and the **Cost Sheet**.

Ideas and Suggestions

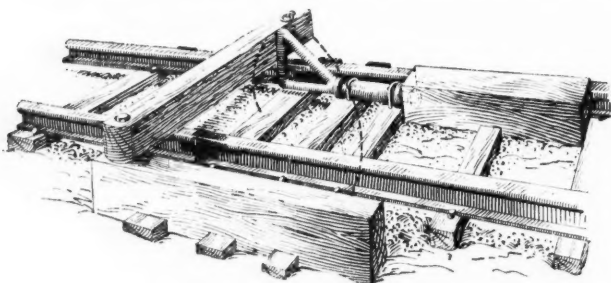
Safety Car Stop

BY M. CRANSTON

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Under "Ideas and Suggestions," *Coal Age*, Aug. 4, 1917, in an article by S. D. Hainley, of Allport, Penn., I noticed the sketch of a safety car stop. This prompted me to submit the accompanying sketch, which is of a safety car stop in use in this district. This stop has been found particularly convenient where the grade is heavy at the top of the slope or incline.

Occasionally loaded cars will bump against the stop, and on certain types of stops when the trip does this



EASILY CONSTRUCTED CAR STOP

it is necessary to push them back again, in order to secure sufficient room to open the stop block and pass the trip over the knuckle. With the stop shown herewith, however, this labor is avoided, since by simply turning the bar to the right and pulling the block over by the ring, clear of the rail, the trip is released.

The stop is made of 1½-in. steel bar working in a sleeve secured to the ties. A bolt is fastened in the block near the ring to prevent the bar going over too far. This safety stop is quite simple in construction and can be made from material that could not be utilized for any special work.

Ten Rules for Foremen and Others

1. *Be Fair.*

Have no favorites and no scapegoats. A foreman has to act as judge many times every day, therefore, he must be just.

2. *Make Few Promises and Keep Them.*

A foreman must be exact in this particular. Sometimes a foreman forgets that his job requires a high standard of truth and honor.

3. *Don't Waste Anger. Use it.*

Anger is the most valuable thing and should not be used carelessly. Keep your most forceful language for special occasions. Before a foreman can control others successfully he must control himself.

4. *Always Hear the Other Side.*

Never blame a worker until he has been given a chance to give his point of view.

5. *Don't Hold Spite. Forgive.*

When you have had to scold a worker, go to him later, in a friendly way. There should always be blue sky and sunshine after a storm.

6. *Never Show Discouragement.*

Never let yourself be beaten. A foreman must have perseverance, and never say die.

7. *Notice Good Work as Well as Bad.*

Mingle praise and blame. Let the workers see that you can appreciate as well as condemn.

8. *Watch for Aptitudes.*

Take a keen human interest in your workers. Notice them. Study them. Put each one where he can do best.

9. *Be an Optimist.*

Don't let your worries and troubles deform you into a pessimist. Inspire confidence. Put the "righto!" spirit into the works. Say—"Come along men, all together!"

10. *Take Your Full Share of the Blame.*

This is the most difficult of all. It is heroic. But the foreman who can share both blame and praise with his workers will have discovered the secret of managing his men.—*The Central Station.*

Switching Losses on Electric Haulage Roads

BY F. A. POCOCK

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The present critical period is one in which it has become necessary to eliminate the "little losses" in coal mining, and toward the furtherance of this end I would suggest a remedy for the switching losses that occur on electric haulage roads.

These losses can be summed up as follows: The time loss throwing switches by hand by triprider; the time loss waiting for the triprider; the wear loss bringing the trip to rest and the power loss starting and accelerating for each switch. In the event of accident to the triprider we have the earning loss of the disabled rider, the producing loss, the indemnity loss and the time loss.

This last loss is hard to determine, for it affects the whole mine from the motorman to the fireboss and from the tippie gang to the doctor, involving the time of many more men than can ever be charged to the accident; yet these accidents are constantly occurring. The triprider is possibly the one who gets hurt oftener than any other man on the job, for he is constantly taking chances; to save time possibly, but chances that he has no right to take. He will jump for a switch, and does this where the light is uncertain and often where the footing is bad, with a heavy trip coming at a reduced speed but still with considerable momentum.

Why not cut it all out?

There are a number of first-class electric track switches in use today which throw switches many times the weight of the usual mine switch. These electric switches have proved their worth on the surface, and they can be rigged with lights underground to show definitely which way the track is open and if they have operated as required or not.

The cost of ten of these switches would be easily covered by the expense and losses due to one accident to one triprider. The running expense and depreciation would be more than covered by the extra time made by the trip, and the continual wear and power loss would be eliminated.

Positive Cutout for Trolley Lines

BY FRANK HUSKINSON

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A few years ago, I took charge of the electrical work at a coal mine where, on several occasions before, mules had been killed by coming in contact with the trolley lines on the motor partings. These trolley lines were supposed to be "dead"; that is, the power was supposed to have been cut off from that particular

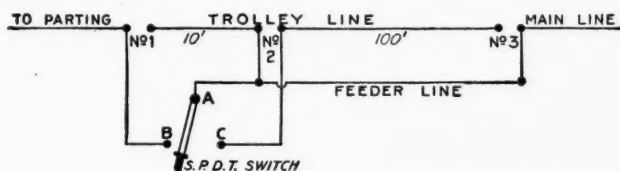


FIG. 1. DIAGRAM OF POSITIVE CUTOUT SYSTEM.

section. Only when the mine locomotive was pulling a trip in or out of the parting is power supposed to be turned onto that section of trolley line. At times, however, the motorman missed or forgot to pull out the switch that cut the power off of that section of the line.

I was asked to install a system that would be positive in action and such that the motorman could not go out and leave the power on the parting lines. I put in the system shown in Fig. 1. The locomotive in going out of the parting was moving uphill. In the diagram the places marked 1, 2 and 3 are section insulators, or cutouts, that are inserted in the trolley line. No. 1 cutout is placed where the trolley should be dead, No. 2 cutout is placed about 10 to 15 ft. from No. 1, while No. 3 is placed about 100 ft. from No. 2.

A special single-pole double-throw switch is placed at a convenient point between No. 1 and No. 2 cutouts. This switch is so placed that with the locomotive coming out of the parting with the loaded trip, the motorman will throw the switch lever just after the trolley wheel has passed over No. 1 cutout onto the line between cutouts Nos. 1 and 2.

From the main line on the other side of No. 3 cutout a feeder line is run to the blade part of the switch marked A, also a tap is taken off of this feeder line and connected to the short piece of trolley between cutouts Nos. 1 and 2. One switch contact is connected to the trolley line that goes to the parting, while the other is connected to the piece of trolley line between cutouts Nos. 2 and 3. This arrangement with the

switch blade on one contact allows the power to be on the lines up to cutout No. 1.

The motorman, upon going into the parting, will throw the switch to the opposite contact. This puts the power into the trolley lines on the partings, but at the same time takes the power off the section of trolley line between cutouts Nos. 1 and 2. The section of trolley line between cutouts Nos. 1 and 2 has the power on at all times, regardless of the position of the switch.

The motorman, upon coming out of the parting with the loaded trip, must throw the switch from one contact to the other before he can get any power on the line between cutouts Nos. 2 and 3. Thus it is impossible for the motorman to leave the switch on the wrong contact. This makes a safe arrangement for the protection of partings where mules are liable to come in contact with the trolley line. A lamp is also placed at the parting and connected to the trolley line and the rails. This light will burn when there is power on the line, but not if the power is cut off. It thus gives the drivers a visual signal as to whether the power is on or off of the trolley line.

The special switch employed is reliable, safe and convenient. It is inclosed and considered safe by the mine and the insurance inspectors. I have several in use and they are entirely satisfactory in all respects. A triangular box of the desired dimensions is made of suitably treated wood. This is lined with sheet asbestos. The metal parts of the switch are mounted within this box, with only the three switch terminals and the handle on the outside. After the connections are made to the switch, the terminals are insulated. The switch handle moves in a slot in the bottom of the box, so that it is practically an inclosed switch. This switch is installed so as to be easily thrown by the motorman as the locomotive passes by. The connections are so arranged that the handle of the switch is always thrown in the same direction that the locomotives are traveling.

Reducing Danger from Sharp Curves

In many mining districts the mountain roads have sharp curves that are the cause of many accidents. According to *Engineering and Contracting*, Sept. 5, 1917, steep sidehills are the cause of many collisions of automobiles because timid drivers hug the "inside" of the roadway, regardless of their right to be there.

The Ridge Road in California has developed an ingenious and effective method of reducing the number of collisions. The sidehill at each sharp turn was excavated so as to "daylight the curve." This consists in widening the sidehill cut, but not excavating the cut clear down to the grade of the road. The cut is carried down to within 3 ft. of grade, and a bench, or berm, of earth is left, over which the automobile driver can look. Then if the driver is hugging the hillside, he can, nevertheless, see an approaching car in time to swing out of its way. Experience has taught engineers of the California Highway Commission that if they widen steep sidehill cuts on sharp curves in the ordinary way, that is, by widening the roadway, cars still continue to hug the sidehill and the drivers are then as unable as ever to see approaching vehicles. The new method of "daylighting" is a decided improvement.

Coal Mining in the United Kingdom Under War Conditions

By J. B. C. KERSHAW, F.S.S.

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THE European War has had many remarkable effects upon the staple industries of all countries, but in no case has its influence been more widely felt than in that of the coal-mining industry of Great Britain.

Speaking at the national conference between the Government and the representatives of the mining industry in October, 1916, Mr. Asquith, who was then Prime Minister, stated that up to the middle of that year 285,000 miners had joined the army, and that although there had been an influx of new workers, the net diminution of men in the mining industry had been about 14 per cent. The total number of persons engaged in mining and quarrying in the United Kingdom before the war was about 1,110,000, so that this reduction in the number of skilled mine workers was bound to have a considerable effect upon the output of fuel.

In spite of the speeding up of activity which occurred in the case of the men who were left in the mines, the output of fuel has fallen away from the high level touched in 1913, the last completed year before the war, and in 1914, 1915 and 1916 the production has not averaged more than 250,000,000 tons per year, while the demand has been greatly increased, by the requirements for munition works, for the navy, and for our allies—France and Italy.

CANNOT GET MINING MACHINES

Under these circumstances the increased use of coal-cutting machinery would have relieved the situation, but unfortunately, owing to the difficulty of obtaining such machinery at the present time, and the scarcity of skilled labor for its erection, it has been impossible to make much use of this means for increasing the output of the mines.

In 1912 there were 2444 coal-cutting machines at work in the mines of the United Kingdom, 1134 of which were electrically driven, and 1310 were operated by compressed air. The tonnage credited to these machines was 11,744,412 to the electrical machines and 8,348,670 tons to the compressed-air machines, making a total of 20,093,082 tons, or slightly under 8 per cent. of the output of that year. The possibilities of obtaining any large increase of tonnage from the mines by the increased use of machinery were therefore slight.

The difficulties of the time were also increased by labor troubles in South Wales and other mining districts. There were also threats of strikes, which in some cases materialized and brought grave results in their train.

In order to cope with the serious situation which had arisen in connection with the fuel supply, the Government therefore, at the end of 1916, decided to introduce certain measures of state control over the coal-mining industry. Acting under the powers conferred upon it by the "Defense of the Realm Act,"

ALTHOUGH the conditions of the coal-mining industry are somewhat different in America than in Great Britain, the abnormal demand for fuel and the shortage of skilled labor resulting from the war has produced the inevitable result of high prices and depleted stocks; and a position similar in many of its features to that which existed in the United Kingdom during last winter is now in course of development on this side of the Atlantic. Under these circumstances, an account of the steps taken by the British Government and by the municipal authorities in England to minimize the difficulties and troubles arising from the fuel shortage should prove of interest and value to American readers, and it is in the hope that action upon somewhat similar lines may be possible and may help to solve the problem now facing the authorities in the United States that this article is published.

passed at an early stage of the war, it appointed Guy Calthrop, a former railway manager, Controller of Mines, under the Board of Trade, and inaugurated a system similar to that under which the railways of the country have been working for three years.

The most important coal field, from the Government point of view—namely, that of South Wales, which produces the bulk of the steam coal used in the navy—was taken over by the Board of Trade from Dec. 1, 1916, and the control was extended to all the other coal fields of the United Kingdom in the summer of 1917. The control at present extends only to the disposal of the fuel mined and to the sale price of household fuel, and each individual mine is worked under the same management and staff as before the order came into force. The profits are paid over to the owners and shareholders in the customary manner, but the transfer of authority to the Controller of Mines, who is able to say how, when and where the coal raised shall be disposed of, will, it is hoped, solve some of the difficulties which have faced the Government and the consumer. The scheduling of coal mining as a state-controlled industry also enables the Government to interfere with much greater authority in the case of wage disputes.

COAL-TRANSPORT REGULATIONS

As an example of the use of the powers conferred upon the Controller of Mines by the orders of December, 1916, and June, 1917, the recently published regulations for coal transport may be referred to. This coal-transport order was issued on July 4 of the present year, and came into force on Sept. 10. Its chief provisions are contained in the three following clauses:

1. No person shall, after Sept. 8, 1917, without the consent of the Controller of Coal Mines, buy or sell, or offer to buy or sell, coal to be forwarded by public railway for inland consumption to any area other than

those to which the coal in question may be so forwarded under the Coal-Transport Reorganization Scheme, as set out in these directions.

2. For the purposes of the aforementioned scheme, Great Britain has been divided into areas (numbered from 1 to 20 on two maps of England and Wales and of Scotland respectively), and a table that is given shows the areas to which coal produced in each of the areas specified in the first column, may be forwarded by public railway for inland consumption, for the purposes indicated in the second, third and fourth columns. (See *Coal Age*, Oct. 6, p. 580.)

3. In accordance with the provisions of sections 2 and 3 of the Coal Transport Order of 1917, every contract for the sale of coal is hereby abrogated as from 6 p.m. on Sept. 8, 1917, in every case in which this is necessary, in order that the re-allocation of the supplies of coal as provided for in clause 6 of these directions, may be effected. (On and from Sept. 10, new contracts for the sale of coal affected by the scheme will come into operation, and all necessary arrangements to this end must be completed not later than Sept. 8; but it is obviously desirable that completion should be reached as much in advance of that date as possible.)

The working of the scheme is placed in the hands of district coal- and coke-supply committees, which have been formed by the coal-mining companies and owners for each of the 20 areas into which the country is divided, and these committees, acting under the Controller of Mines, will take over all the correspondence and local arrangements, each in their own district.

PRINCIPLES UNDERLYING COAL REGULATION

In an explanatory note attached to the regulations, the controller states that the scheme is based on the four following principles:

1. That consumption of coal should take place as near the producing point as possible.
2. That in view of the superior facilities afforded by the main trunk lines, the movement of traffic should follow these routes wherever possible.
3. That the movement of coal should as far as possible be in well-defined directions—namely, north to south; north to southeast, north to southwest, east to west.
4. That an area producing less coal than suffices for its own needs should not send any portion of its output to other areas, whereas an area producing more coal than it requires for consumption within the area itself should only distribute the balance to adjacent or convenient areas.

Before the war, the railways of the United Kingdom were hauling 227,000,000 tons of fuel per annum, and it is estimated that about one-fifth of this total, or 42,000,000 tons, will be brought under the operation of the scheme. The immediate purpose of the regulations is to obviate the necessity for long hauls, in view of the shortage of rolling stock, locomotives and trained railway men, but an incidental advantage will be the saving of fuel on 700,000,000 ton-miles of haulage. The savings that can be effected if this scheme be efficiently worked are apparent to all, and although some difficulties may be experienced at first in manufacturing operations, by the withdrawal of classes

of fuels to which firemen have become accustomed, and for which furnaces and methods of firing have been specially adapted or designed, these drawbacks to the operation of the scheme will no doubt be quickly overcome.

Another direction in which benefit will result from the scheme is in connection with the quicker return of empty coal cars and the better use of these for coal transport. The pooling of privately owned cars and the power taken, early in 1917, to use the cars of one coal company for coal raised by another, had already effected some improvement in this matter, but the abolition of long hauls will add greatly to the transport capacity of the cars now in use, and should enable both the domestic and industrial consumers to obtain more regular and satisfactory delivery of their fuel requirements. In order to safeguard the domestic supplies of the poorer class of consumers, the municipalities in all large towns have been authorized also to purchase and stock house coal, which will be retailed to the working class population at fixed rates during the coming winter.

ECONOMY OF FUEL

Concurrently with the arrangements outlined in the foregoing for simplifying and cheapening the transport of fuel from the mine to the user, the Controller of Mines has published suggestions whereby economies may be effected in the use of fuel. The following are the more important of these:

1. *Power Uses*—Factory owners who at present generate their own power from coal should make arrangements for taking their power requirements from an outside source, in districts where the power supplies have a margin available, and thereby reduce the total amount of coal used. The Coal Controller will assist, as far as possible, in obtaining priority for the plant, machinery and motors required, provided a substantial coal saving can be demonstrated.

2. *Use of Coke*—Locally produced coke breeze should be used in place of coal as much as possible in domestic grates, factory furnaces, public-utility plants at light loads, also in baths and washhouses, provided coke is available in sufficient quantities.

3. *Public Services*—The curtailment of those public services which entail coal consumption, such as early and late street-car service (after consultation with the Ministry of Munitions where munition workers are likely to be affected) and the prevention of unnecessary use of water.

4. *Stocks*—The accumulation of stocks in the summer months as far as deliveries will permit, of the coal required during the winter months; the cost of such storage being considered as a form of insurance against the probable coal shortage.

5. *Cooking and Heating*—The installation of gas or electric cooking and heating appliances in public and private buildings, with a view of saving coal generally and lessening the serious inconvenience to the public this winter, should the local distribution of coal become irregular or insufficient.

7. *Interconnection*—Arrangements (as suggested in the letter of the Board of Trade dated May 25, 1916) should be made with the neighboring towns to interconnect electric distribution systems, or generating

plants, by means of underground cables, or in suitable cases of temporary overhead wires over the intervening country, so as to enable one or two of the most economical power stations in each district to supply several towns at light loads, instead of each town having to run its own power station uneconomically at such times. This would also enable the various power plants to shut down in turn during week-ends and holidays, to effect plant repairs, and would provide some amount of power at call, as a stand-by in case of coal supplies giving out locally.

A printed leaflet giving hints to householders on methods of saving coal and gas is also being circulated by the National War-Savings Committee in all towns and cities, and it is hoped that in this way a considerable saving in the domestic demands for fuel will be effected.

In any case the combined effect of the state control of the mines, the more sensible regulation of coal transport, and the effort to promote economy of fuel both in the factory and in the home, must lead to some amelioration of the fuel position in Great Britain during the coming winter, as compared with that of 1915-1916.

REGULATION OF PRICES OF HOUSE COAL

By an order issued on Sept. 11 of the present year the Board of Trade and Controller of Mines have conferred on local authorities in all towns and country districts power to fix and maintain retail prices, during the coming winter months, for house coal in the town or urban district over which they exercise authority. Under the terms of this order:

1. The price at which coal delivered by road vehicle from a depot or wharf or railway siding, in lots of 1 ton or over, may be sold, subject to the provisions of article 13 of this order, at a price not to exceed by more than 1s. per ton, the price of coal delivered at the depot or wharf or railway siding, in addition to the actual cost of handling and delivery, such cost to include depot and office expenses.

2. The price of coal sold or delivered in smaller lots than 1 ton, from a road vehicle, shall not exceed by more than 2s. per ton the maximum selling price in the same district for sales of the same description of coal, in lots of 1 ton or over, from road vehicles as prescribed by article 1 of this order.

5. The price of coal sold in quantities of 2 cwt. or less at dealers' shops shall not exceed by more than 1d. per cwt. the maximum selling price in the same district for similar quantities, sold from road vehicles, as authorized by article 2 of this order.

- 10a. Every local authority as defined herein, shall, after consultation with the coal merchants in their area, publish in the local press, and in such other manner as may appear to the local authority to be desirable, lists showing the prices chargeable under this order, for the various classes of coal sold in the district, for household purposes.

- 10b. The local authority may, by publication in the manner prescribed herein, withdraw or vary any or all of the prices published by them under this article.

13. The publication of retail prices of house coal by a local authority in the manner prescribed by article 10 of the order shall, so long as the prices are not

withdrawn or varied as provided herein, be conclusive evidence that such prices comply with the provisions of this order.

Danger of Oxygen Rescue Apparatus*

When oxygen rescue apparatus was first introduced in the United States and made use of in the mines following explosions and fires, there was a wide misconception on the part of many miners and mining men as to the extent to which it might be used, and the limitations of the physical endurance of those who volunteered to wear the apparatus. Many conceive the idea that with an oxygen apparatus a man immediately acquires superhuman strength and endurance. It is not putting it too strongly to state that a number of good men have gone to their death in an effort to satisfy a false belief on the part of spectators that the apparatus had no limitations, and that the wearer knew no limit of physical exertion.

The helmet type of apparatus has received condemnation by many scientific investigators, and the Bureau of Mines has publicly denounced its use for mine or fire-fighting purposes; still there are some who persist in its use, and they are but challenging death. Some helmets may be made to fit tightly temporarily, but the models now in use have large dead spaces, and under enforced breathing admit external air.

It is safe to say that a number of deaths here and in foreign countries have resulted through the wearer breathing his own carbon dioxide, or through leakage of external air into the circulating system of the apparatus. To overcome the re-breathing of air highly charged with carbon dioxide, an efficient absorber is one of the essentials; the apparatus, if of a constant-feed model, should supply an excess of oxygen above the requirements of the wearer; if an intermittent feed, there should be either a constant leakage externally or an auxiliary supply held within a flexible medium under small pressure, which will make the breathing circuit under positive pressure.

The difficulty experienced by designers and manufacturers heretofore has been that the physiological requirements have not been given full consideration. The apparatus has been constructed in a manner which enables the wearer to perform limited physical work. However, it is a source of gratification to report that some manufacturers are now enlarging the absorbers and providing a bypass valve and readjusting the zone of reduced, or negative, pressure.

The Gibbs apparatus, described in U. S. Bureau of Mines technical paper No. 82, is constructed with the sole idea of adapting the apparatus to the limitations of the wearer, whereas some types now in use require the man to adapt his activities to the limitations of the apparatus. This subject has been discussed in a technical paper issued by the Bureau of Mines under the joint authorship of Dr. Yandall Henderson and James W. Paul, the subject of which deals with the status of oxygen-rescue apparatus and the physiological effect on users of such equipment.

*Abstract of an article, "Status of Oxygen Rescue Apparatus and Physiological Effects on Users," by James W. Paul, chief of coal-mining investigations, U. S. Bureau of Mines, Pittsburgh, Penn.; presented at the meeting of the National Safety Council, New York, Sept. 13, 1917.

Replacing Shaft Timbers

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DURING these strenuous times, numerous old shafts are being repaired, and abandoned and caved shafts are being reopened. Consequently, a few remarks on replacing shaft timbers may be timely.

In most instances in the past, shafts have been timbered without making allowances for the wood decaying and the necessity of subsequent retimbering. The life of shaft timbers is uncertain and variable. Timbers may be broken; they may decay quickly; or they may be wholly or partly destroyed by fire. For these reasons, attempts at least should be made to forestall so far as possible the inconvenience of these happenings.

It is a grave oversight, both from safety and from economic standpoints, when timbering a shaft to make no allowances for repairing the timbers. Working in a shaft with heavy timbers entails considerable danger, expense, and a loss due to the suspension of the output, all of which are matters of importance to the management.

ALL SHAFT LININGS IN ILLINOIS MUST BE FIREPROOF

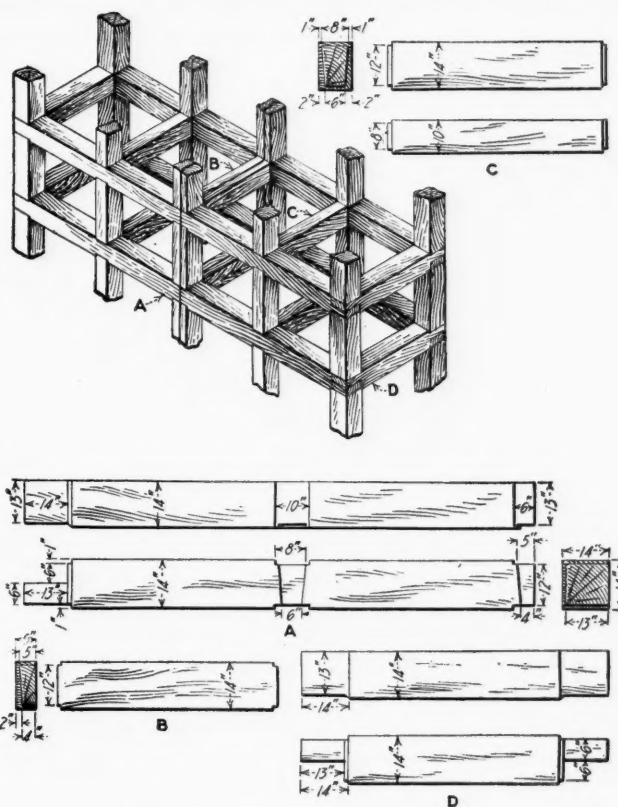
After the Cherry mine fire in Illinois, the mine workers in that state secured the enactment of a law which demanded that in the future all shaft linings should be fireproof. So far as I am aware, no other state has passed such laws; nevertheless, a number of coal operators in different regions have adopted reinforced concrete for new shafts and for relining old shafts. Some of these improvements were adopted for purposes of safety and economy before the Cherry fire occurred; but as the expense connected with such work is only possible with strong companies, reinforced-concrete shafts are in evidence only here and there. If this method of lining shafts is too expensive for some coal companies to undertake, the management can at least adopt modern ideas to increase the life of timbers, to lessen the chances of shaft fires, decrease the dangers in connection with the work, and finally, reduce the work entailed in retimbering and thus reduce the cost.

For the foregoing purposes two simple suggestions are advanced; namely, use creosoted timbers and employ properly constructed joints. The timbers in the shaft sets shown in the sketch are notched with a view to making close fits and to allow the ready removal and replacement of individual sticks. The wall plates *A* are not made so long that they become difficult to manipulate, or extend beyond a given post. This being a four-compartment shaft, it will be noticed that the wall plates butt at the center post and overlap at the corner posts; also that the center posts and buntions *B* are composed of two timbers, the combination being for the purpose of effecting the easy removal of the timbers and make it possible for two sets to be removed while the two opposite sets remain in place. This not only lessens the labor, but permits quicker work; and if the repairs are made during two shifts, the remaining eight-hour shift can be devoted to hoisting.

The intermediate posts with their buntions *C* are made of somewhat smaller timbers than the corner posts and their buntions *D*. However, they must be sufficiently

large and stiff to resist any side pressure that would bend the wall plates if not reinforced.

The sets shown in the illustration were adopted when replacing timbers in a shaft 800 ft. deep. The work consisted in removing 80 sets of timber in a distance of about 500 ft., commencing at a level 300 ft. below the shaft collar. The force, which consisted of 3 shift-bosses, 9 timberman, 72 helpers, 16 laborers, 1 carpenter and 1 helper, was divided into nine gangs so that three gangs could work at different levels in the shaft during an eight-hour shift. The upper gang changed 22 sets of 10 x 10-in. timbers in eight shifts; the next lower gang worked in heavier ground, but changed 22 14 x 14-in. timbers in eight shifts; the



METHOD OF JOINTING TIMBERS

lowest gang were able to change 33 sets of 10 x 10-in. timbers in seven shifts.

The total cost of the work was \$1,022.96, or \$12.79 per set. This work was done before the war and does not include the cost of the timber. What the cost would be now is a conundrum. Because of the variation in the size of shaft compartments the lengths of the timbers are not here given. It might be stated, however, that hoisting compartments being governed in cross-section by the size of cars to be hoisted, they range generally from 6 ft. 6 in. by 10 ft. 4 in. to 7 ft. 6 in. by 12 ft. 6 in. Usually the upcast shaft has a larger area by a few square feet than the downcast shaft; and if steam is carried into the mine for pumps, the pipes are placed in the upcast.

Care of Cutter Chain and Associated Parts

By ADOLF F. FORS

5468 Woodlawn Ave., Chicago, Ill.

SYNOPSIS—Cutter chains are apt to be neglected. In order to do their best work, these chains should be kept at the proper tension, be properly lubricated, bits set evenly and the whole cutter bar held firmly in position. If any of these points are neglected, trouble may result.

THE part of a coal-cutting machine which really does a large portion of the hardest work and which is most likely to receive the least attention is the cutter chain. The following suggestions refer to the proper care and maintenance that should be given the cutter chain and associated parts in order to insure continuous and satisfactory operation.

The question of the proper chain tension is largely a matter of judgment resulting from experience with the use of a coal-cutting machine. Nevertheless, a somewhat fixed rule can be adopted in regard to determining the proper tension. A satisfactory rule followed by many of the larger operators is as follows:

After the machine has cut a 30-ft. room, test the chain tension by pulling the chain out of the guide at the right-hand opening in the side of the underframe. The chain is at the proper tension when it can be brought out to a position flush with the outside edge of the cutter arm. By referring to the accompanying illustration, this method will be made clear.

HOW NOT TO TEST FOR CHAIN TENSION

In case the cutting machine is not provided with an opening in the side of the underframe, the testing of the chain tension is a more difficult matter. By taking hold of the chain lugs near the center of the arm and moving them up and down, one is not able to accurately determine whether the chain is at the proper tension. It is a common occurrence to see a mine electrician or machine inspector step up to a coal-cutting machine, take hold of the lugs and imagine that he is testing the chain tension. As a matter of fact, the lips on the chain guide hold the chain in the arm so that testing its tension near the middle of the arm is more than likely to be deceiving.

When the cutter chain is allowed to run too tight, it introduces an unnecessary friction load on the machine accompanied by considerable heating of the cutter head and other bearings, and rapid wear of these parts is sure to result. On the other hand, if the chain is permitted to run too loose, it becomes a difficult matter to control the machine; that is, the cutter arm either climbs or else digs down into the bottom. Spreading and rapid wear of the cutter-arm guides is one of the results of a loose chain.

Furthermore, when the chain is loose, it does not enter the cutter arm properly after leaving the sprocket, and the chain is liable to become fouled. When the chain is loose it has a tendency to weave; that is, one block or bit tries to follow the cut made by the preceding one, and eventually a cutter bit comes along that will be re-

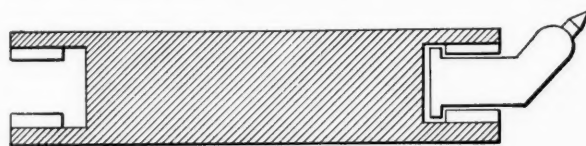
quired to cut more than its share. The load thus imposed often causes chain breakage and severe overloading of the whole machine. This weaving is also frequently the cause of the rapid wear of the setscrew heads. Thus it is clear that it is of utmost importance to keep the chain at the proper tension.

Aside from the regular lubrication with a heavy oil just before or after cutting a room, the chain should be oiled once or twice a day with a lighter oil, allowing this lubricant sufficient time to reach the working joints of the chain. Before oiling the chain, it is a good plan to let it run a few seconds so that the coal cuttings and dust will be thrown out and not get clogged up with the oil when it is applied. Several schemes have been developed which provide a means for continuously oiling the cutter chain while the machine is crossing the face. These, however, do not seem to work out satisfactorily, owing no doubt to the fact that when the chain is in rapid motion the oil is almost immediately wiped off and only a small portion of it accomplishes any useful lubrication.

A sprocket-type cutter head should always be provided with wool waste to insure gradual feeding of oil to the sprockets when cutting. When this waste is removed or renewed a convenient opportunity is afforded for extracting any coal dust or dirt that may have gotten into the cutter-head cavity.

On a machine which is so constructed that the cutter arm is clamped to the main frame, it is important that the clamp bolts be kept tight; otherwise, the plane of the cutter arm may be out of line with that of the sprocket. One of the results of a loose cutter arm, therefore, is that the chain does not ride the driving sprocket correctly and fouling of the chain is almost sure to result. A machine with a loose cutter arm is also rather difficult to control under the coal.

The machine runner should always use a bit gage when setting bits so that these parts all take hold uni-



NORMAL POSITION OF CHAIN IN CUTTER ARM



CHAIN IS AT PROPER TENSION IF IT CAN BE PULLED OUT OF GUIDE TO THIS POSITION

formly and the cutting load is thus properly distributed over the chain. If a bit gage is not used, and the runner sets the bits by guess, some are almost sure to be out farther than the others. A long bit consequently does more than its share of the cutting and becomes dull before the others. These dull bits cause a heavy load to be imposed upon the machine during the rest of the cut or until they are renewed. The proper length of

bit gage is such that the cutter arm cuts with ample clearance until the time comes to reset the bits because they have become dull.

When rebuilding a chain, do not put new and old straps together at random, but rather match up the straps so that any pair of straps share the load equally. In other words, use two new or two old straps together.

When repairing a chain while on the machine, make sure that something solid is placed under the cutter head so that the chain rivets will be drawn up tight. After putting a new rivet in the chain, its head should be cut off flush with the straps. High rivets cause heating of the chain and rapid wear and possibly spreading of the chain guides.

When riveting a cutter chain with a hand hammer, care must be taken as much as possible to only hammer

the rivet and to avoid striking the strap any more than is absolutely necessary. The reason for this is that mining-machine manufacturers are case-hardening their cutter chains and the hammering on the straps is liable to crack the portions that are thus hardened.

It is bad practice to let the chain continue in operation with several dead lugs in it. As soon as there are two chain blocks that for some reason or other are unable to hold cutter bits, it is a good policy to replace them. The absence of any bit generally causes the next one of the same position to do twice the intended amount of work, and therefore the whole mechanism is proportionally stressed an excessive amount.

In general, the chain is really the toolholder of a coal-cutting machine and as such is worthy of close attention in order to insure continuous satisfactory operation.

Coal Production in British Columbia

IN VIEW of the threatened serious shortage of fuel oil, the production of coal in Canada is receiving more attention than ever before. British Columbia, as a field that is capable of considerable development, occupies an important position.

Last year the province produced 2,495,893 tons of coal, this being some half million tons in excess of the previous year's output. It is stated by the operators that the existing mines are easily capable of producing an additional million tons a year if the labor can be obtained.

The production in 1916, compared with that of the year before, is given as follows in the latest returns of the Department of Mines:

	Tons, 1916	Tons, 1915
Coal, gross.....	2,495,893	1,972,580
Less made into coke.....	439,221	361,451
Coal, net.....	2,026,672	1,611,129

Summarizing the provincial production of coal, the following table shows the estimated output for last year:

	Tons
From Vancouver Island collieries.....	1,510,456
From Nicola and Similkameen.....	104,548
From Crows' Nest district.....	880,889

There was no coke production from the Nicola and Similkameen collieries. The Vancouver Island collieries produced 28,044 tons and the Crows' Nest district collieries 242,431 tons.

The net coal production for the year is above the pre-war standard, although not varying very much from that production. It would have been considerably greater had not the Crows' Nest collieries met with a series of misfortunes during the year that interfered with production. In addition there was a serious shortage of labor and, in the latter part of the year, numerous labor troubles.

The Vancouver Island collieries made a gross output of 1,510,456 tons of coal, or about 489,000 tons more than in the previous year. The Western Fuel Co. mined about 560,000 tons of coal, an increase of some 144,000 tons.

In the city of Nanaimo, the Nanaimo colliery is entered by a shaft which is connected by underground workings with a shaft on Protection Island and also

on Newcastle Island. The workings are at a depth of from 600 to 1200 ft. and are very extensive, including a large submarine area.

On the north side, both the Douglas and Newcastle seams are operated, but on the south side only the Douglas, or upper seam, is worked. The property has been in operation since 1881 and is still the largest producing mine in the province.

The Reserve colliery is situated about 5 miles from Nanaimo and the Douglas seam is reached through two shafts, 950 ft. deep. The property became a producer in 1914, but development has been retarded by the faulted and much disturbed condition of the seam. It gives promise of being a large producer this year. Two collieries are operated by the Canadian Collieries, Ltd., situated at Cumberland, 70 miles north of Nanaimo, and Wellington-Extension at Extension, 6 miles southwest of Nanaimo.

The larger demand for bunker coal is reflected in the output of 453,122 tons, an increase of 192,000 tons, at Comox. At Extension, four mines were operated during the year, Nos. 1, 2 and 3, entered by a tunnel 5000 ft. in length and No. 4 entered by a shaft. The output for the year was 262,377 tons, an increase of about 95,000 tons, compared with the 1915 production.

The Pacific Coast Coal Mines, Ltd., operated the South Wellington and Morden collieries; these are situated about 6 miles south of Nanaimo and produced 155,000 tons of coal during the past year, an increase of 25,000 tons.

A new slope was driven at the Morden shaft and the shaft bottom reconstructed at a point 13 ft. lower than the old temporary shaft bottom. This improvement makes a large output possible.

The Vancouver-Nanaimo Coal Mining Co. operates the New East Wellington colliery, situated 2 miles west of Nanaimo, and is working the old Wellington seam. The output for the past year was 79,000 tons, an increase of 31,000 tons over that of 1915, reflecting, in common with other companies on Vancouver Island, the general improvement in the business over the previous year.

There were about 104,000 tons of coal produced in the Nicola and Similkameen coal fields last year, an increase of 5000 tons. Here, as on Vancouver Island, the demand

exceeded the output, which was hampered through shortage of labor.

The Middlesboro colliery is estimated to have produced 49,000 tons during the year, an increase of 1000 tons over that of 1915. The Inland Coal and Coke Co. produced 30,000 tons, which is 4000 tons less than in the previous year.

A new organization, known as the Merritt Collieries, Ltd., took over the holdings of the former Diamond Vale Co., situated at Merritt.

In the Similkameen section the Princeton Coal and Land Co., situated at Princeton, was, as in the former year, the only producer. The output is estimated at 24,500 tons, being an increase of 9000 tons over the previous year.

There were only two companies producing in the East Kootenay last year—the Crowsnest Pass Coal Co. and the Corbin Coal and Coke Company.

There was mined in this district some 881,000 tons of coal, an increase of 28,000 tons over 1915. Of this tonnage, about 365,000 tons was used to make coke and yielded 242,431 tons of that commodity, an increase of 2000 tons over that of the previous year.

Owing to high prices prevailing for metals and the consequent activity of the metal mines and smelters, the demand for coal and coke from this district far exceeded the output.

The early portion of the year gave promise of a much larger production than was realized. Labor troubles in the latter part of the year seriously affected the output. An explosion in No. 3 east mine of the Michel colliery early in August cut off production for the rest of the year, and "bumps" in No. 1 east mine at Coal Creek seriously curtailed the output of that colliery.

Milwaukee Coal Statistics for 1916

The following data concerning the coal trade at Milwaukee have been compiled by the local trade and commerce at that place:

COAL RECEIPTS AT MILWAUKEE FOR FIVE YEARS

From	1916	1915	1914	1913	1912
Buffalo.....	613,530	984,968	950,701	1,028,491	834,131
Erie.....	224,915	194,525	191,646	153,602	367,527
Oswego.....	62,953	103,466	88,509	79,150	64,213
Cleveland.....	239,245	575,180	676,776	570,599	357,232
Ashtabula.....	623,606	288,556	354,149	486,739	242,297
Lorain.....	447,620	642,922	576,868	722,098	766,897
Sandusky.....	391,129	564,443	597,903	599,752	532,065
Toledo.....	1,752,023	1,251,285	1,237,635	1,228,153	1,180,596
Fairport.....	87,541	101,391	66,740	27,853	48,037
Huron.....	40,406	38,135	173,953	129,068	144,966
Conneaut.....	107,416	120,334	34,332	201,863	44,727
Other ports.....			1,366	1,402	

Total by lake.....	4,590,384	4,865,205	4,950,578	5,228,770	4,582,688
Total by rail*.....	605,998	405,340	409,516	631,493	589,569

Total receipts.....	5,196,382	5,270,545	5,360,094	5,860,263	5,172,257
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* Including car ferries.

COAL SHIPMENTS FROM MILWAUKEE FOR THREE YEARS

Shipped by	1916	1915	1914	1913	1912
Anthracite	169,022	549,423	718,445	922,819	763,132
C. & N.-W. Ry.....	169,641	460,043	629,684	620,982	581,908
Soo Line.....	34,998	34,356	69,354	112,105	135,865
Lake.....	60	60	60	490	5,345

Totals.....	373,661	1,043,882	1,417,543	1,656,396	1,486,250
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LAKE RECEIPTS OF COAL AT MILWAUKEE (TONS)

	1916	1915	1914	1913	1912	1911
Anthracite.....	853,217	1,088,434	1,061,704	1,153,406	973,388	1,013,907
Bituminous.....	3,737,167	3,776,771	3,888,874	4,075,364	3,609,300	3,591,515
Totals.....	4,590,384	4,865,205	4,950,578	5,228,770	4,582,688	4,605,422

WHOLESALE PRICES F.O.B. CARS IN 1916* AT MILWAUKEE

Months	Wyoming and Cross Creek Anthracite, Egg, Stove and Nut	Pocahontas Screened tucky	Cannel, Kenton Splint	Steam Coal Screened, per Ton	Coal Hock. Yough.	Mine Run Pocahontas
January.....	\$6.85@7.10	\$5.00	\$6.75	\$3.40	\$3.40	\$3.25
February.....	6.85@7.10	5.00	6.75	3.40	3.40	3.25
March.....	6.85@7.10	5.00	6.75	3.40	3.40	3.40
April.....	6.85@7.10	5.00	6.75	3.65	3.65	3.50
May.....	6.70@6.95	5.00	6.75	3.65	3.65	3.50
June.....	6.80@7.05	5.00	6.75	3.65	3.65	3.50
July.....	6.90@7.15	5.00	6.75	3.65	3.65	3.50
August.....	7.00@7.25	5.00	6.75	3.65	3.65	3.50
September.....	7.10@7.35	5.25	6.75	3.90	3.90	3.75
October.....	7.10@7.35	5.35-60	6.75	4.25	4.00	3.85
November.....	7.10@7.35	6.35	6.75	5.00	5.00	5.00
December.....	7.10@7.35	7.05	6.75	6.00	6.00	7.00

* Reported by the Lehigh Valley Coal Sales Co.

FREIGHTS TO UPPER LAKE PORTS

Lake freights on coal from Buffalo to principal upper Lake ports during the season of 1916, compared with those of 1915, were as follows per ton in cents:

Months	To Milwaukee 1916		No. Branch 1915		To Chicago 1916		So. Branch 1915		To Duluth 1916		1915	
	Cont.	Wild	Cont.	Wild	Cont.	Wild	Cont.	Wild	Cont.	Wild	Cont.	Wild
April.....	0.35	0.35	0.30	0.45	0.45	0.40	0.50	0.50	0.45	0.30	0.30	0.30
May.....	35	35	30	45	45	40	50	50	45	30	30	30
June.....	35	75	30	45	85	40	50	80	45	30	30	30
July.....	35	75	30	45	85	40	50	90	45	30	30	30
August.....	35	85	30	45	90	40	50	1.00	45	30	30	30
September.....	35	85	30	45	90	40	50	1.00	45	30	30	30
October.....	35	85	30	45	90	40	50	1.00	45	30	30	30
November.....	35	85	30	45	90	40	50	1.00	45	30	30	30
December.....	35	1.00	30	45	1.00	40	50	1.25	45	30	50	30

The Shirker

BY RUFUS T. STROHM

He toils with one eye on the clock
And notes the minutes swiftly flitting,
And so he always leads the flock
That throngs the exit gates at quitting.
He hates the starting whistle's chime
That sounds of work and calls him to it,
And never labors overtime
Unless he knows he's paid to do it.

Square dealing as a working plant
Is so old-fashioned he would spurn it;
His motto reads "Get all you can,
But give the least you must, to earn it."
If he should chance to find a leak
With profits daily wasting through it,
He probably would scorn to speak,
Because he isn't paid to do it.

He loafs along from day to day,
Contented with his low position,
Since drawing down his meager pay
Is quite the height of his ambition.
The thing that might be termed his brain
Has gone to seed, if he but knew it,
For he avoids all mental strain,
Because he isn't paid to do it.

Until the day they close his eyes
And summon in the undertaker,
This foolish man will never rise
Above the level of the faker.
While hosts of others in the race
Will seize the honors they're pursuing,
Because they strive to do with grace
The things they aren't paid for doing.—Power.

Iron Horse that Balked on Coal

BY EDGAR WHITE
Macon, Mo.

"If it hadn't been for the war we might never have known how blamed big a thing coal was, with all the talk of 'lectricity and oil and gas. Everybody said coal was getting to be a has-been and—bang! She comes in again like a bombshell, and all on a sudden the scientists and newfangled power producers kow-tow to old King Coal worse'n ever. I told you so."

The big superheater that hauled the Limited in from Kansas City had just been rolled by the coal chutes at Brookfield, and Engineer Ben Woodlief, who had made the run on her, joined the little group of waiting men in the roundhouse office.

"Of course, you did, Ben," observed Jim McCarty, a retired East End man, with a gentle sarcasm, "and that's the reason they didn't yank out the fireboxes and put oil tanks in the tenders; but time was—and war time too—when coal wasn't anything to brag about on the 'Joe' line. Ever hear about the 'Seneca'?—Injun name that, but she was a good old teapot so long as they stuck to wood. When the other war came on, and the road got some big contracts to move troops and supplies for the Government, the big-wigs decided to try coal instead of wood. Some big beds had been discovered over in Bevier, and a young Englishman named Tom Wardell had figured it out for the road magnates that they'd just have to quit cutting down the forests so as to leave timber for tiers and bridges and houses and the like, and burn coal. You see, Tom had a coal mine, and he was naturally interested in the development of our underground resources.

"The 'Seneca' was the goat. Up until then she had been the mildest and best mannered little toy steam engine you had ever seen, but when she understood she had been elected as the victim for that new 'fool' fuel experiment she got cross as a bear. An engine's got feelin's same as a cat or a dog or a—er—human. You needn't laugh, you know it has!

"The 'Seneca' was a steady old balloon-stack affair that ate her head off in wood on every run. They put two firemen in the cab the day they made the trial run with coal—one to load up the furnace and the other to poke a long bar in and stir up the fire. They thought if you didn't keep the coal worked up the blaze might die down. But somehow the 'Seneca' just laid down on the job and sulked. The firemen had to clean out the grates half a dozen times on account of getting them choked up with clinkers, and they had to end up the run with wood. Then a mechanic climbed in and removed the clinkers with a chisel. It took the 'Seneca' a day to make the run from Hannibal to Brookfield, about 100 miles, and her reputation as a good engine was lost. Some of 'em laid it on to coal, declaring that sort of stuff wasn't fit for a respectable machine to use. They said it had sulphur in it, and would pop like a gun, which was partly true, and that it made clinkers and had such a villainous smell that it was an insult to passengers and the general public along the right-of-way.

"But I guess President Bob Stewart and Superintendent Hayward knew what they were about, because they put their mechanics to overhauling all their

engines so as to make them coal burners, and even the 'Seneca' got good again when she was fixed to face the music.

"The change of fuel put a lot of wood agents out of business, and there was a growl from one end of the line to the other, because there was a lot of them. They had figured coal would be too expensive, because you had to go way down underground for it, and have all sorts of machinery and track to get it out. You see, this was a new country then and men had queer ideas about things. Some even opposed the building of the road. A man on the line who had been nominated for the legislature or congress or something took the stump on the anti-railroad platform. He told the people that the cars would make such a noise they would scare the stock into fits; that a railroad would furnish an easy means for slaves to escape from the plantation, and the road could not be run more than six months in the year anyhow, because in the winter time the track would be covered with snow and mud, and that the stage coach drawn by horses would be the only thing you could depend on."

"Wonder what he would have said if somebody had suggested traveling in an airship?" thoughtfully remarked Felix Allison, the pusher engineman at New Cambria.

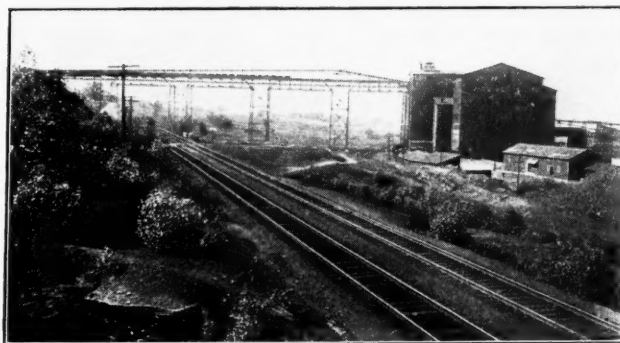
"More'n fifty years since the 'Seneca' took her medicine," mused McCarty, "and every year since that time somebody's been printing pieces about a new power producer that's going to put coal on the shelf alongside Indian arrow heads and flint-lock muskets, and she not only holds her own today but has well-nigh butted everything else out of the way when it comes to making the wheels go round."

COMING MEETINGS

American Society of Mechanical Engineers will hold its annual meeting Dec. 4 to 7 at the Engineering Societies Building, New York City. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

Coal Mining Institute of America will hold its annual meeting, Dec. 5 and 6, at Pittsburgh, Penn. Secretary, H. D. Mason, Jr., 541 Fourth Ave., Pittsburgh, Pennsylvania.

Kentucky Mining Institute will hold its winter meeting, Dec. 14 and 15, at the Seelbach Hotel, Louisville, Ky. Secretary, Charles W. Strickland, Sturgis, Kentucky.



BUTLER COLLIERY, PITTSBURGH, PENN.: HILLSIDE COAL AND IRON CO.

Capacity, 2500 tons a day

First-Aid Training in Indiana During 1916

By SPECIAL CORRESPONDENT

TRAINING in first aid has received more support in Indiana during the year 1916 than at any time previous. The added support has come from the miners themselves. At present one out of every 25 miners in the state has received first-aid training, and one in every 75 has successfully passed a test by competing at one or more first-aid meets in the state during the past year. Two teams competed in four contests during 1916; three out of the 16 teams competing in the National Safety Council first-aid meet at Detroit came from Indiana.

If the men trained in first aid were proportionately distributed throughout all the mines, it would be highly gratifying. However, such is not the case. There are still miners' locals and operators in Indiana who will not have anything to do with the first-aid movement. Other miners' locals are enthusiastic and get results. In one mine one man out of every ten has been trained; and there is a team in every machine district.

The Vandalia Coal Co. is the pioneer operator in the first-aid movement in Indiana and still gives its usual support to the movement. The first contest west of Pennsylvania was held at Linton, Indiana.

Credit for this enviable record must be given largely to the first-aid department financed by the Indiana Operators' Association, in charge of Dr. A. F. Knoefel, who has been supported in his movement to make every Indiana miner a first-aid man by H. I. Smith and G. T. Powell, of the United States Bureau of Mines, the mine inspectors of Indiana, and the United Mine Workers from the officials of District 11 down to the men in nearly every local in the state.

One of the most important features necessary to maintain harmony at a first-aid meet is to have a corps of judges who may be classed as experts. The factors that go to make up this type of judge are that he be a medical man with a large experience in industrial surgery, that he be perfectly acquainted with the standard which should obtain in a first-aid contest, and that he should have officiated a number of times at such contests, as only by this means can he get the practical experience which is so necessary. Through Dr. Knoefel's efforts a number of doctors in Indiana have interested themselves in the work and are now very well qualified as judges. This is attested to by the fact that their services as judges have been called for in two adjacent states—Illinois and Michigan.

AS AN example of the way in which the doctors of the state have rallied to the support of Dr. Knoefel may be mentioned the fact that the Sullivan County (Indiana) Medical Association held a first-aid meet on Nov. 2. This is the first time in the history of the American medical profession that a medical society has been the sponsor of a first-aid meet. During the past year, six first-aid meets have been held under the latest standards of the Bureau of Mines—five county meets and a state-wide meet. Doctors Scott, Wedel and Dunneg have officiated at five of them, Dr. Knoefel acting as chief judge at all. A number of other physicians have sup-

ported the movement by officiating at one or more of the six meets.

Each problem given at the first-aid meets has had a safety lesson connected with it by explaining in detail how the accident occurred. This feature is very impressive, both in making the contestant a more careful man and in familiarizing him with the accidents that he may expect in the mine. It also appeals to the audience, as it gives them an idea of the hazards with which thoughtless or careless miners are confronted.

THE miners who have taken an interest in the first-aid work and received first-aid training have often been of great assistance to their brother miners. A most praiseworthy and service-rendering feat was demonstrated at the time of the Bruceville mine explosion, when members of the team which won first place in the first annual Indiana first-aid meet held at Bicknell, Oct. 30, 1915, were among those who took the lead at every critical moment. Immediately after the explosion one of these men found himself one of a body of 25 men trapped by the smoke of the explosion. After making three unsuccessful attempts to get out through the smoke, he led the men back to a portion of the mine where the smoke had not reached, and directed the work of erecting stoppings to barricade themselves in. First a door was opened, short-circuiting the air, and then stoppings were built out of the material at hand, with the explanation that "the rescue men would get us within 48 hours." They had selected in their inclosure a dip entry where water could be obtained. They collected as many dinner pails as they could hurriedly get together, then completed their barricade and waited in the best possible spirit until such time as they would be rescued.

Another member of this prize-winning team was caught by the smoke almost before he could leave his working place. He and his buddy started to build a stopping with gob, the only material at hand, at the dead end of a cut-through driven from Room 3 to recover Rooms 1 and 2, which had caved. They had no sooner started this work when they noticed their brothers groping blindly through the smoke. They hailed each as he came by and drew him into their refuge chamber. Before a great while 17 men, two of whom belong to the first-aid team, were packed in this place, averaging only about 10 sq. ft. of floor space to the man.

A third first-aid man, who was a member of the first-aid team from this company which competed in the second annual Indiana first-aid meet at Clinton, Ind., was going home to Bruceville at the time of the explosion. He was a fireboss and had just completed his shift. As soon as he heard of the explosion he immediately returned to the mine with a safety lamp and flashlight. While assisting in the recovery of two bodies in the main south, he learned from what section of the mine the different men had reached the surface, and found that no men had come out from the main east section of the mine. He immediately went into the main east entry and found the door open and a barricade

across the entry built of boards. He had the men tear down the brattice and lead out the 25 men from this group. There were still 17 men missing from the first and second north off the main east, but the smoke was much thicker in this entry than in the east.

He went as far as possible with the aid of the safety lamp, then with the use of his flashlight. Leaving those that were with him, he pushed ahead through the smoke, and within 5 min. had examined the first rooms. He did not find anyone in them. This gave him hope that the men working in this place were not killed before being able to leave their working place. Just at that moment he heard the men behind the barricade talking, and went to their assistance and rescued them, having each man catch onto the man in front of him, and with the aid of the flashlight led them out to fresh air. Within two hours after the explosion these 42 men were all led to fresh air, which accounted for all the men who were missing, the explosion having claimed two dead and 23 injured by burns. The helpful assistance of one man to another cannot be confined to these three men who had competed in the first-aid meets. There were many men who risked their lives to help. Communication was not established with the men in the mine until an hour after the explosion, when 17 burned

done so skillfully that it was not necessary to remove them after taking the men to the hospital.

This article would not be complete without some acknowledgment of the work of Charlie Kenmuir, John Mosby, Robert Logan, Steve Arnott and Hughey Walker. These men were also among the local leaders in all the work done with rescue apparatus in sealing up the fire area starting from the explosion.

New River's Thousand-Dollar Club

The New River Co., which operates in Fayette and Raleigh Counties in the heart of West Virginia, and whose directing head is Col. S. A. Scott, has formed at each of its many mines what is known as the "Thousand-Dollar Club."

The ten best miners at each mine for any two-weeks'



THESE FIRST-AID TEAMS TOOK PART IN THE ANNUAL CONTESTS

Upper illustration shows first-aid team from Bruceville in Indiana Annual First-Aid Meet, Clinton, Ind. In lower illustration is shown first-aid team from Crown Hill No. 3 mine, which competed in second annual Indiana First-Aid Meet at Clinton, Indiana.

men were hoisted on the first cage. Those on top were ready with first-aid material and rendered a great service before the supply of sterile bandages and picric acid gauze had been exhausted. The doctors were soon on the scene and completed the dressing of the injured, and those most badly burned were rushed to the hospital. The bandages applied to these men by the first-aiders were examined by the doctors, but the dressing had been

period are given a cash bonus if their earnings exceed \$1000. At the close of each semi-monthly pay period a statement is issued from each of the mines showing the names of the ten men earning the highest wages together with the amount earned by each. This is then published in one of the county papers. This plan has been quite successful in increasing the tonnage.

A recent report, showing the earnings of the best ten men at the company's several mines for two weeks, is as follows: Lochgelly,

\$781.96; Prudence, \$636.34; Whipple, \$1032.02; MacDonald, \$690.59; Harvey, \$969.26; Scarbro, \$834.25; Carlisle, \$941.57; Summerlee, \$1092.20; Collins, \$783.92.

It will be noted that only two mines, the Whipple and the Summerlee, managed to secure a place as \$1000 earners. But this earning involves an average wage of \$200 per month for 10 men, which is a large income for a man in a semiskilled employment.

Some Schemes and Devices

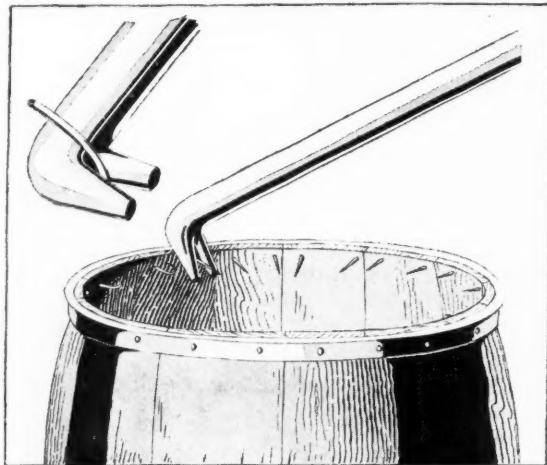


FIG. 1. SIMPLE DEVICE THAT TURNS THE NAILS IN TOP OF NAIL KEG

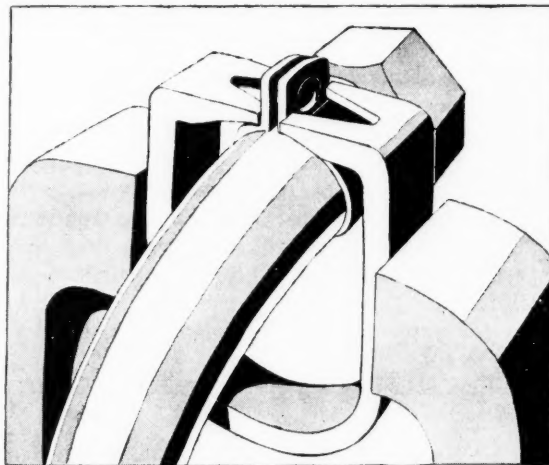


FIG. 2. A HOSE CLAMP THAT SAVES TIME AND TEMPER

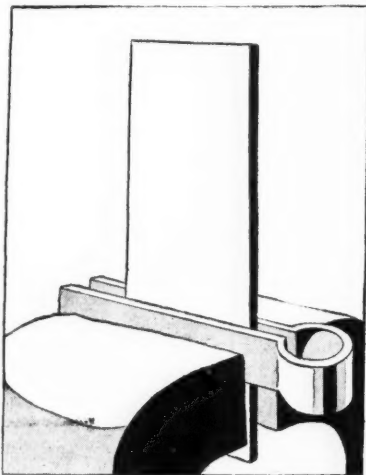


FIG. 3. HOLDING FINISHED WORK IN A ROUGH-JAWED VISE

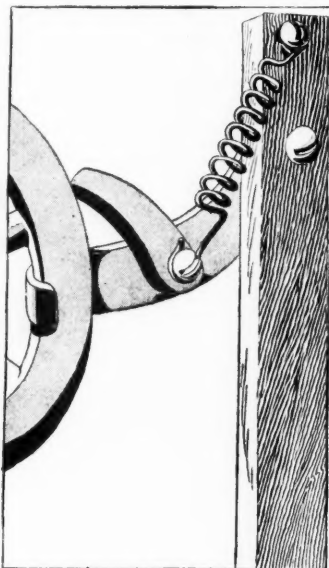


FIG. 4. THIS WILL TURN ANY HANDWHEEL ANYWHERE

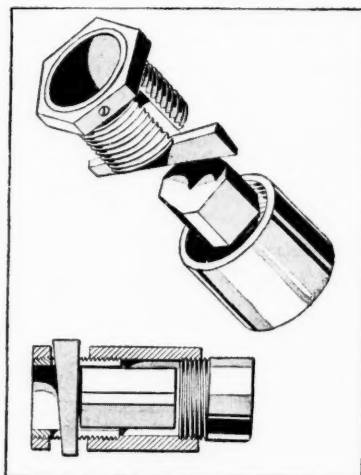


FIG. 5. SHORT PIPE NIPPLES ARE EASILY THREADED BY MEANS OF THIS HOLDER

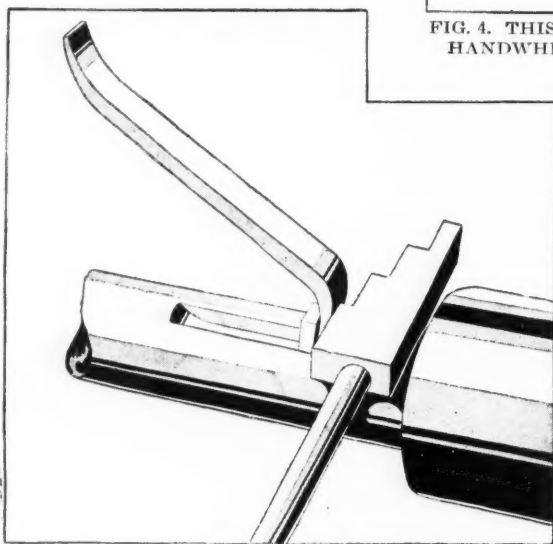


FIG. 6. THE SIZE OF THE KEY MAKES NO DIFFERENCE WITH THIS KEY PULLER



FIG. 7. VINEGAR IS A CHEAP BUT EFFECTIVE MEANS TO LOCK A NUT

for Use About the Mine

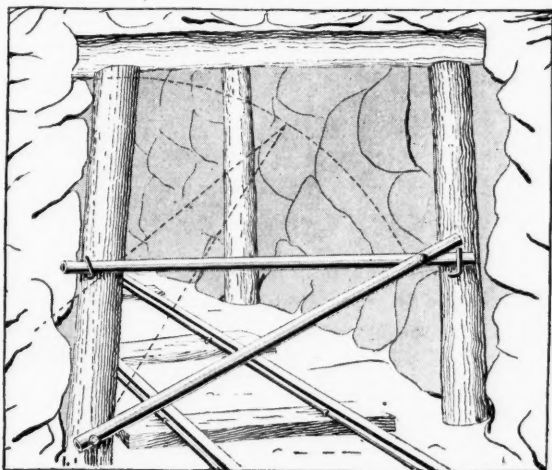


FIG. 3. THIS GATE WILL STAY OPEN OR CLOSED

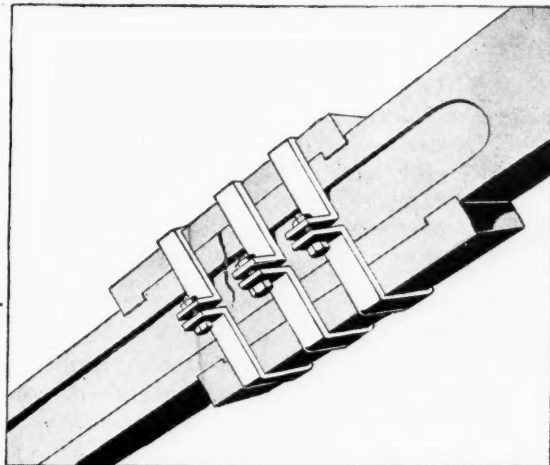


FIG. 9. AN EFFECTIVE TEMPORARY CONNECTING-ROD REPAIR

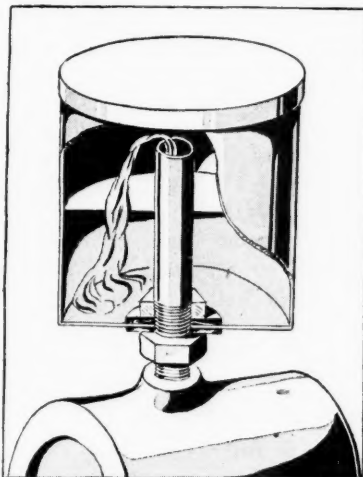


FIG. 10. OILER FROM NIPPLE, LOCKNUTS, WASHERS, TIN CAN AND PIECE OF WICK

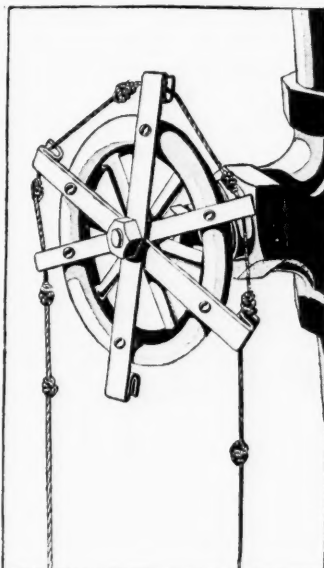


FIG. 11. A VALVE MAY BE OPENED OR CLOSED BY A KNOTTED ROPE

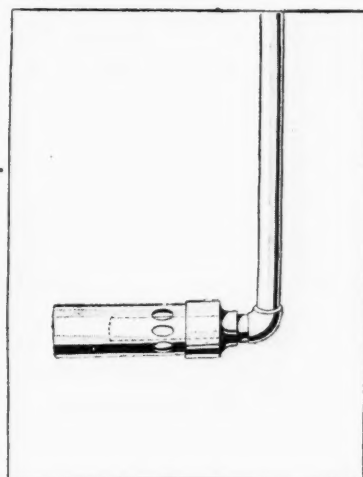


FIG. 12. WITH THIS DEVICE WATER MAY BE STEAM-HEATED WITHOUT NOISE

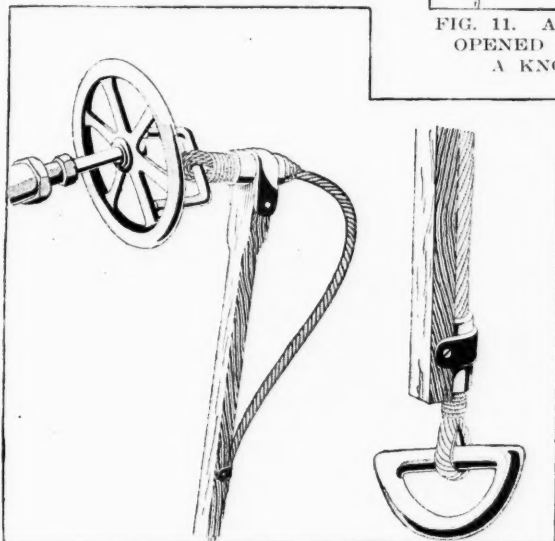


FIG. 13. THIS SIMPLE DEVICE EASILY OPERATED AN OUT-OF-THE-WAY VALVE

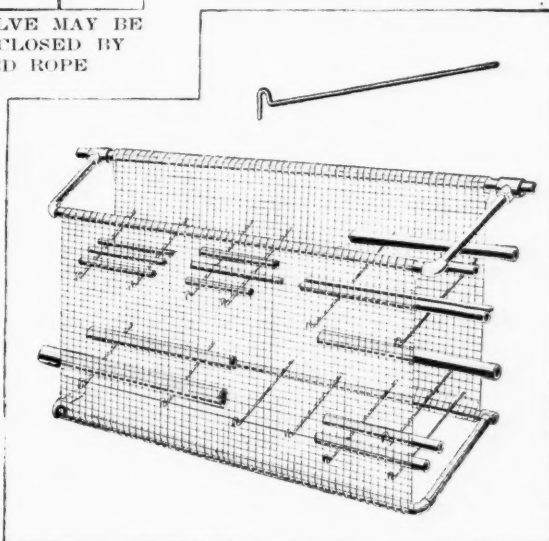


FIG. 14. OLD SCREEN AND BENT RODS MAKE A CONVENIENT STOCK RACK

Caging Arrangements at Deep Coal Mines

By ROLAND GASCOYNE
Johannesburg, South Africa

SYNOPSIS—*In deep mines it has been found necessary to hoist more than one ca. at a time and to decrease so far as possible the time required in loading and unloading the cage. For this purpose, several devices have been perfected, some being automatic in operation while others employ hydraulic or other power.*

IN DEEP collieries, where much time is necessarily spent by the cages traveling in the shafts, various arrangements have been designed to reduce the time occupied in loading and unloading the cages at the surface and shaft bottoms.

As mines have increased in depth it has been found necessary to increase the number of cars hauled per trip, either by placing the cars side by side or adding to the number of cage decks. At a depth of 1000 ft., at least a double-decked cage would be used, at a depth of say 1500 ft., probably three decks would be employed, and from a depth of 2000 to 3000 ft. at least a four-decked cage would be necessary, it being assumed that in each case two loaded cars would be carried on each deck.

TIME CONSUMED IN 1500-FT. SHAFT

Take, for instance, a shaft 1500 ft. deep. The time consumed in hoisting may be as much as 50 sec.; and if each deck is loaded separately and three decks used, the time occupied in loading may possibly be 25 sec., so that half the time spent in winding would be taken up in loading and unloading the cages. If during these operations there was any delay, either at the top or bottom of the shaft, the time would be correspondingly increased.

It is evident that in an instance like this an output of 1000 tons per day would be the maximum obtainable; and if an output of 1500 tons per day was required, the best way to achieve that object would be to accelerate the loading and unloading arrangements. It is quite possible in an instance like this to reduce the time necessary for hoisting, loading and unloading from 75 to 60 sec., and perhaps less; and in that case the 1500 tons required in a day of 8 hours would be easily obtained.

It would perhaps be advisable to deal with the time-saving appliances, first, as they pertain to the loading and unloading of double-decked cages, and afterward to their connection with three- or four-decked cages.

In *Coal Age* of July 29, 1916, Gaston Libiez asked whether it was not possible for some system to be arranged whereby the cager at the pit bottom could load his double-decked cage independently of the surface, and thereby avoid the necessity of having to signal to the engineer to move the cage in order to load the second deck. Two replies to this inquiry were published. One of these, by William Norris (*Coal Age*, Aug. 26, 1916), went rather fully into the subject and gave many details in explanation of the system. There

are, however, more ways than the one he mentioned for attaining the same object, one of which will also save time in the loading and unloading of double-decked cages. It is when the shafts attain a depth of from say 2000 to 3000 ft. that the need arises for the use of cages with more decks than two and the employment of time-saving appliances becomes imperatively necessary.

If the cage has only two decks, independent loading may be attained and much time saved by having a platform to correspond with the upper deck at both the surface and shaft bottom. At the surface the platform need be only of sufficient area to accommodate the cars required. The loading and unloading of the two decks at the surface and pit bottom is carried out by hand simultaneously at the two different levels.

The usual procedure adopted on the surface platform is to place the two loaded cars in a cage, located on the loaded side of the shaft for that purpose, the cage being then lowered to the bottom level. This lifts another cage on the empty side of the shaft containing two empty cars, needed for the shaft cage on its next trip. The empty cage is so constructed that its weight is sufficient to bring the other cage to the platform level when required. This work is being carried out while the cages are traveling in the shaft.

There are several different ways of removing the loaded cars from the upper platform and supplying it with empty cars. Steam hoists or creepers may be employed, but the method described above is automatic and generally used where power is unavailable.

ADVANTAGES OF THE METHOD

Of course, to derive the full benefit from this method, there must be a corresponding arrangement at the shaft bottom. Generally, it is easy to arrange different loading levels at the shaft bottom, and if necessary the arrangement can be readily reversed by placing the additional loading level underfoot instead of overhead, as at the surface. The advantages of this method are its simplicity and safety, as no loose rope is required either at the surface or at the pit bottom, to permit the loading of the double-decked cage. The foregoing method, in conjunction with the movable platform hereinafter described, can also be used in deep shafts, thus reducing the time of loading the cages 50 per cent.

Another method of loading decked cages at the pit bottom independently of the surface is to have a movable platform at the car level at the pit bottom. This platform, which may be operated by brakes or hydraulic power, is suspended at the pit-bottom level by chains passing over pulleys. The platform is connected with balance weights in a pit and is worked by an ordinary brake.

The balance weights are arranged to bring the empty platform to the pit-bottom level, where it covers up the sump. The platform, being at the pit-bottom level on its descent receives the bottom deck of the cage. This is loaded with full cars in the usual way. Then the cager, by means of the brake, lowers the partly loaded

cage to the next deck to be loaded and repeats this operation until all the decks are full. The signal is then given the engineer to take the loaded cage away.

The cager is thus able to load the cage independently of the surface, where it may be noted the top deck is loaded first and in reverse order to that at the pit bottom. The engineer is also free to attend to the surface movements of the cage without having to wait for signals from the pit bottom, until such time as the bottom cager has completed his loading operations.

If preferred and practicable, the platform at the pit bottom may be worked by hydraulic pressure, either by utilizing the water collected at a level in the shaft or by using other accumulations; but the brake system is generally employed because it is the simplest and least liable to get out of order.

Great care must be exercised at the pit bottom when the loading of the cage is completed, to see that the detaching hook is not fouled in the cage chains and also that the cage chains are in proper order before the loaded cage is signaled away from the shaft bottom. For want of this precaution several serious accidents have been known to occur. In deep shafts, where heavy loads are hauled, this precaution is absolutely necessary.

IMPROVED METHODS NECESSARY IN DEEP SHAFTS

When shaft depths are excessive, say from 2000 to 3000 ft., it becomes necessary to improve upon the foregoing methods and adopt more accelerated means for loading and unloading the cages. It is necessary in many European collieries to obtain at least 2000 tons per day from depths of over 2000 ft., and in such cases it is necessary that in the hoisting, loading and unloading of cages as little time as possible be lost.

Years ago George Fowler, of Nottingham, England, introduced a hydraulic method of loading and unloading colliery cages which, with few improvements, is yet in use in very deep shafts. Both the surface and shaft-bottom arrangements are the same in principle except that at the shaft bottom it is possible to utilize the water behind the curbing as a source of motive power. As surface and pit-bottom arrangements are practically the same, one description—that for the top landing—will answer for both.

The principle of Fowler's hydraulic arrangement is to empty and charge the cage at one operation, no matter how many decks the cage may possess. To insure this a cage with the necessary decks is provided on both sides of the shaft cage, one to receive the loaded cars the other to contain the empties, before being forced by hydraulic rams onto the cage which travels in the shaft. On a cage with three decks, the upper one will be landed at the surface level and changed by hand in the ordinary way, while the other two decks will be changed by machinery. The two lower decks of the shaft cage have corresponding decks, in a receiving and charging cage, on the full and empty sides of the shaft cage. These two cages are worked by vertical hydraulic rams. The one on the full side receives the loaded cars from the shaft cage, while the one on the empty side contains the empty cars intended to replace the full ones brought to the surface by the shaft cage. Horizontal rams placed in rear of the empty side cage are brought into use to propel the empty cars into the shaft cage, and at the same time

to force the loaded cars out of the shaft cage into the receiving cage on the full side of the shaft.

While this is being done the top deck of the shaft cage is being changed by hand. This movement completed, the horizontal rams are withdrawn and the receiving and charging cages elevated by vertical rams, to be emptied and charged in readiness for the next operation.

It must be noted that for each cage traveling in the shaft a separate receiving and charging cage must be provided. The time taken to load and unload a decked cage by this method, no matter of how many decks, is generally 5 to 10 sec. One man works both the vertical and horizontal rams for the loading and emptying of the various cages, while during the 5 sec. the horizontal rams are in motion one man attends to the catches. He is afterward free to look after the completion of the operation throughout the time the cages are traveling in the shaft.

Pennsylvania Mines Relatively Safe

Statistics showing the production, fatalities, fatalities per 1000 employees, fatalities per 1,000,000 tons produced and the production per fatality in the bituminous mines of the United States as compared with the bituminous mines of Pennsylvania for eighteen years, 1899 to 1916 inclusive:

	Production	Employees		Fatalities		
				Per 1,000 Em- ployees	Per 1,000,000 Tons	Pro- duction per Fatality
United States (Bituminous)	4,049,573,236	5,553,711	21,567	3.88	5.33	187,767
Pennsylvania (Bituminous)	2,281,924,184	2,956,363	8,460	2.86	3.71	269,731

If the average fatalities in the bituminous mines of the United States outside of Pennsylvania had been 2.86 per 1000 employees as is the case in Pennsylvania instead of 3.88, the number of fatalities would have been 15,774 instead of 21,567, a reduction of 5793, or 26.86 per cent. decrease.

If the fatalities in the bituminous mines of Pennsylvania had been 3.88 per 1000 employees as is the case in the bituminous mines of the United States instead of 2.86, the number would have been 11,470 instead of 8460, an increase of 3010 or 35.58 per cent.

Statistics showing the production, fatalities, fatalities per 1000 employees, fatalities per 1,000,000 tons produced and the production per fatality in the bituminous mines of the United States as compared with the anthracite mines of Pennsylvania for eighteen years, 1899 to 1916 inclusive:

	Production	Employees		Fatalities		
				Per 1,000 Em- ployees	Per 1,000,000 Tons	Pro- duction per Fatality
United States (Bituminous)	4,049,573,236	5,553,711	21,567	3.88	5.33	187,767
Pennsylvania (Anthracite)	1,394,656,847	2,951,604	10,230	3.47	7.34	136,330

If the average fatalities in the bituminous mines of the United States outside of Pennsylvania had been 3.47 per 1000 employees instead of 3.88, the number would have been 19,271 instead of 21,567, a difference of 2296, or 10.65 per cent. decrease.

If the fatalities in the anthracite mines of Pennsylvania had been 3.88 per 1000 employees instead of 3.47, the number would have been 11,452 instead of 10,230, a difference of 1222, or 11.95 per cent. increase.

News From the Capitol

By Paul Wooton



War Industries To Get Coal

What is regarded as one of the most important proclamations emanating from the Fuel Administration reads as follows:

The matter of transportation is receiving immediate consideration by the Fuel Administration, in conjunction with the Railway War Board, and other agencies, in the direction of taking action to relieve the present congested condition of transportation, which is seriously interfering with the production and shipment of coal, in that the railroads are unable to handle promptly the coal offered for transportation and the return of the empty cars to the mines.

Action will undoubtedly be necessary in the immediate future in the direction of curtailing shipments to plants using coal in the production of nonessentials. This will be undertaken by curtailment, rather than elimination, in order that the general situation will be disturbed as little as possible. The improvements in transportation which must be accomplished, together with the curtailment of shipments of coal to nonessential industries, to a limited extent, will provide sufficient coal for the railroads, munition plants, public utilities and domestic requirements.

The transportation problem can only be relieved by the reduction in the amount of freight the railroads shall be called on to handle. The reduction of shipments of coal will accomplish this, in that it will remove from the rails the per cent. of coal covered by such reduction, and will accomplish a proportionate reduction in the amount of products to be moved as a result of such curtailment.

The Government's war requirements have been provided, and attention is now being given to the various steel plants and plants manufacturing Government munitions and other supplies.

The requirements of public utilities are being arranged for on a permanent basis. Also the domestic requirements.

Special arrangements have been made to provide coal for shipbuilding plants, which will insure the operation of these plants on a 100 per cent. basis, in so far as the supply of coal is concerned. The same applies to the aeroplane program.

New Coke Price Order

To keep the record straight, and to provide for differentials, Dr. Garfield has made an announcement as to coke prices. The price of coke, which was fixed at \$6 by agreement with the War Industries Board, and which was approved by the President, was arranged without consulting Dr. Garfield, it is understood. His announcement as to coke prices is as follows:

The maximum prices for coke made in ovens, without by-product recovery, east of the Mississippi River, shall be as follows:

Blast-furnace coke	\$6.00
Foundry coke, 72-hr. selected.....	7.00
Crushed coke, over 1-in. size.....	7.30

The maximum prices for various grades of beehive coke made in districts other than that described heretofore shall bear the same ratio to the established price of the coal from which the coke is made as the average contract prices of the same grades of coke had to the average contract prices of coal during the years 1912 and 1913.

In each case the price shall be understood as the price per ton of 2000 lb., f.o.b. cars at the plant where coke is manufactured.

All the maximum prices mentioned herein shall apply to car lots sold to consumers or to dealers for wagon delivery; any commissions paid to selling agencies or margins allowed to jobbers shall be paid by the vendors and shall not be added to the prices established hereby.

In all cases where wagon deliveries are made, either by the coke producer or by dealers, a reasonable charge for such handling and delivery may be made; such charge shall be subject to approval of the state fuel administrator.

Jobber's Commission May Now Be Added to Contract Price

Hard as it was to convince Dr. Garfield that his order with regard to coal bought under contract prior to the President's order was unfair, the jobbers finally succeeded in getting him to allow the sale of such coal at the contract price plus the jobbers' commission as fixed by the President. In effect the order provides as follows:

1. The jobber must establish to the satisfaction of the fuel administrator of the state in which he desires to sell the coal that his contract is bona fide and enforceable and made prior to the date of the President's order.

2. He must give proof of the amount of coal still unsold under his contract and state the names, addresses and occupation of the persons to whom he proposes to sell.

3. The state administrator shall, however, have the right to specify the persons to whom the coal must be sold and the jobbers must undertake to sell the coal to such persons and in such amounts as the state administrator may designate.

4. The price at which the coal shall be sold shall not exceed the contract price plus the amount of the jobber's commission as fixed in the President's order.

5. If the contract is not proved to be bona fide and enforceable, the coal may not be sold in excess of the price fixed in the President's order, plus the jobber's commission.

What Central Pennsylvania Is Doing

C. E. Leshner makes some interesting observations with regard to the possible capacity of the mines in central Pennsylvania in connection with his weekly coal report. He says:

Because of their proximity to the large industrial territory of the North Atlantic and New England States, the coal fields of central Pennsylvania are now under extreme pressure to meet the demand for fuel. The 494 mines included in this report produced 823,454 net tons of coal during the week ended Oct. 27. If each of these mines had been able to operate six full days, their production at the same rate and with the same number of men would have been 1,099,500 net tons. If the cars had been available, these mines could have loaded 281,800 tons more than were loaded. In the aggregate these 494 mines operated but 4.5 days out of 6; in some districts on some roads full time was attained; in others the average was as low as 1.5 days out of six.

New Prices for Wagon Mines

To meet a demand from both consumers and operators, the Fuel Administrator has amended his order with regard to direct deliveries from wagon and other mines. The new order reads:

Coal sold at a mine to be delivered direct to the consumer by wagon or truck may be sold at a price f.o.b. mines, to be fixed by the local fuel administration committee in the community in which the coal is delivered for consumption, subject to the approval of the state fuel administrator. Such local committee shall also in such cases fix the haulage rates to be charged where the coal is delivered by the mine operator.

This amends the order of Oct. 4, which read:

Coal delivered direct to the consumer from the mine by wagon or truck (whether from wagon mines or other mines) shall be sold at not more than the prices fixed by the President and the Fuel Administrator plus the actual cost of hauling.

Every Miner Must Have a License

Any person in the United States found with explosives in his possession after Nov. 15, and who does not have a license issued by the Federal Government showing the purpose for which the explosives are to be used, will be arrested at once and fined up to \$5000 or sent to prison for one year. If the circumstances warrant, the person may be fined \$5000 and in addition given the one year in prison.

This is the principal clause in a war measure passed by the last Congress which is now being put into effect by the Bureau of Mines, Department of the Interior, which bureau has been charged with its enforcement. Francis S. Peabody, of Chicago, a well-known coal operator familiar with the use of explosives, large amounts of which are used in the coal-mining industry, has been appointed by Secretary of the Interior Lane to act as assistant to the Director of the Bureau of Mines, Van H. Manning, in the enforcement of the law.

The law provides that everyone who handles explosives must have a license. The manufacturer, the importer and the exporter must have licenses issued by the Bureau of Mines in Washington. The seller of explosives and the purchaser of explosives must also have licenses, these to be issued generally by county clerks, or other local officers who are authorized to administer oaths. There will be at least one licensing officer in each county, and more agents will be designated if the county is sufficiently large to warrant it. If a state has laws providing for a system of licensing persons manufacturing, storing, selling or using explosives, the state officials authorized to issue such state licenses shall be designated as Federal licensing agents; also city officials qualified to issue city explosives licenses will be given authority to issue Federal licenses. A Federal license will not relieve any person from securing licenses required under state laws and local ordinances.

In each state there will be appointed a state explosives inspector, who will represent the Bureau of Mines in the administration of the law within the state.

Only citizens of the United States or of countries friendly to the United States and the Allies may so obtain licenses. Contractors, mining companies, quarrymen and others using large quantities of explosives, which are handled by employees, may issue explosives

to their employees only through those employees holding a license, called a foreman's license.

The purchaser of dynamite, in obtaining a license, must state definitely what the explosive is to be used for and will be held accountable for its use as stated and the return of any explosives that may be left. With the strict enforcement of this law, the Federal authorities hope to prevent explosives falling into the hands of evilly-disposed persons and to put a stop to all further dynamite plots.

It having proved to be a physical impossibility to license all users of explosives prior to Nov. 15, when the law becomes effective, Francis S. Peabody, assistant to the Director of the Bureau of Mines in charge of explosives, has urged that "business as usual" be continued to the end that there may be no loss of coal or metal production as a consequence.

On and after Nov. 15, all manufacturers, vendors, foremen, exporters, importers and analysts who deal with explosives or ingredients of explosives shall keep an itemized record of sales, issues or other disposition made of explosives and ingredients, pending receipt of detailed instructions and the securing of necessary licenses required by law.

More than 2000 persons have been designated to issue licenses. In most counties it only has been necessary to designate one person for this duty, but in some counties many more have been designated. In several Pennsylvania counties fifteen have been found necessary.

Detailed instructions to licensors are to be sent out within a few days. A few of the paragraphs from these rather extended instructions are as follows:

13. Appearance in Person—Every applicant for a license must appear in person before the licensor. In the case of firms, associations, societies and corporations desiring a license for purchasing or vending explosives, or in the case of educational institutions applying for the analyst's, investigator's or educator's license, the application may be presented by and the license issued to the properly qualified officer of such firm, association, society, corporation or institution, and the license shall be made out in the name of the firm, association, society, corporation or institution; but a foreman's license shall be issued upon presentation of the application of the foreman in person and shall be issued to the foreman in person, as foreman of the designated individual, firm, association, society or corporation. A corporation official applying for the license for a corporation and a foreman applying for a foreman's license should present proper credentials to show his official capacity. The word "foreman" as used in the regulations designates the person actually issuing explosives from the explosives magazine and any other person who may be designated by his company to see that explosives are taken by a workman only to points necessary to the carrying on of his duties and that unused explosives are returned to a safe place, whether or not this man is known at the mine or plant or carried on the payrolls under the title of "foreman."

14. Citizenship—The law specifies that an applicant "shall state under oath his place of birth, whether native born or naturalized citizen of the United States of America; if a naturalized citizen, the date and place of naturalization." In the case of corporations, firms and associations, the nationality of the controlling stockholders must be indicated. Licenses will not be issued to enemy aliens or to subjects of a country allied with an enemy of the United States; or to a corporation, firm or association where its controlling stockholders or members are enemy aliens or subjects of a country allied with an enemy of the United States.

WITH WAR INDUSTRIES operated on the present basis, the shortage of coal in the United States is approximately 50,000,000 tons a year. That amount must be provided by the curtailment of nonessential production and reduced consumption in the home, if the nation is to do its full duty.

The Labor Situation

General Labor Review

News from almost all parts of the United States seems to indicate that coal labor is going to be after a while as loyal in accepting an increase in wage from Dr. Garfield as the operators were in accepting a cut in prices from the same official. One would have thought that men who received an increase of 39 per cent. in day wage would be willing to make all manner of guarantees to be satisfied with that wage.

A disinterested person would have expected that a keen sense of obligation to the public would have existed among men who were granted a 39 per cent. advance to meet about a 10 per cent. increase in cost of living and who were given that increase in face of a contract which prohibited them from demanding any increase at all. But in many quarters it has not been so. Only after several strikes and many protests has the new contract been put into effect. With the operators it is different. They cut prices voluntarily once, they accepted Dr. Garfield's (or should it be President Wilson's?) cut without question. *Noblesse oblige*, they argued, and went on working like patriots.

Mine Worker Offends and Operator Is Blamed

The daily press still abuses the operator because the miner is recalcitrant, but after a while the miner will be reasonable and it will not be thought well then to abuse anyone. It is hoped that the change in the heart of the miner will come soon—so soon that the operator will escape the greater part of the punishment that he would otherwise bear vicariously for the obstinacy of the mine worker.

The anthracite conference that commenced on Nov. 8 appears likely to last some time. The mine workers want not only more wages but the closed shop. The Fuel Administrator is sidestepping as usual. In an official bulletin of Nov. 9 he says:

Operators and miners representing the anthracite fields of Pennsylvania called upon Fuel Administrator Harry A. Garfield last night. No demand for increased miners' wages was discussed. The representatives of the miners and operators will work out a new wage agreement in a conference that will be continued in Washington. Representatives of the Fuel Administration will be present at these conferences, but will not become parties to the agreement.

As Usual Fuel Administrator Temporizes

So Garfield will not say that wages are to be increased in the anthracite region as much as in the bituminous region, though the need is at least as great; he will not promise to give countervailing price increases. He will sit mum and let mine workers and operators battle for a scale, then he will let them petition him a while for an increase in price. Why not come out from the first with some definite decision? The duty of the administrator is to administrate. It is his office to discuss wages. He is not appointed to be a mere spectator when a decision is asked of him.

In central and western Pennsylvania there is little change in the labor situation. The men are a little more ready to work now that the wage increase is granted. The nonunion fields have granted increases similar to those conceded in the union field. However, the Connellsville region is a law to itself. The mine workers in that region received an increase in October, so it was a little too much to give them an increase such as union fields enjoyed.

To be more specific, on Nov. 9 the H. C. Frick Coke Co. announced a general wage advance effective the following day, Saturday, Nov. 10. This advance will be granted doubtless by all the Connellsville operators.

The advance granted on Oct. 1 raised the mining and loading rate from \$2 to \$2.16 per 100 bu. of room-and-rib

coal. On the same date the rate for inside laborers was increased from \$3 a day to \$3.25. Now the first rate is increased to \$2.29 and the day rate for inside laborers raised to \$4.15. The advance in mining and loading room-and-rib coal is 6 per cent., whereas the day workers receive an increase of 28 per cent.

The strike on the Salisbury branch of the Baltimore & Ohio Ry., in Somerset County, seems to be coming to an end. The men were striking for union recognition. The increase in wage seems to have appeased them and they are going back to work.

Delegations from Ohio, Utah and the Jellico, Tenn., fields have been in Washington during the past week discussing wage agreements.

Southwestern Miners Take Disloyal Course

The news from the Southwest is not gratifying. There the penalty clause ordered by Dr. Garfield is most unpopular. D. A. Frampton, president of the Missouri branch of the United Mine Workers of America, declared the clause "the most unjust and unreasonable ever written in any contract." He added, however, "But it is another question whether we can oppose the Government official charged with the fuel output for the nation at war."

At 7:30 p.m. on Wednesday, Nov. 14, after a spirited debate, the mine workers of five Southwestern states in convention at Kansas City voted, by a majority of 18, to reject the automatic penalty clause which the Government demands shall be inserted in the agreement between the operators and the mine workers. This adverse vote was followed by a successful motion in favor of the agreement made between mine workers and operators at the October conference, an agreement not satisfactory to Dr. Garfield.

D. A. Frampton, to whom reference has just been made, and John Wilkinson, the president of the Oklahoma branch of the United Mine Workers, made strong appeals for national loyalty in speeches championing the penalty clause. Earlier in the convention Frampton, as just noted, condemned the clause. He had also condemned the international officers of the union for approving it. Though these two presidents are won over by the administration, Alex Howat, president of the Kansas mine workers, still opposes the penalty clause. On going to press the miners are continuing their session to frame a course of action.

On Nov. 7 the operators and mine workers of the New River and Winding Gulf districts made an agreement at Thurmond, W. Va., providing the increases specified in the Washington agreement and accepting the penalty clause, which stipulates that no strike or stoppage of work shall occur at any mine until the question in dispute shall have been considered and fully disposed of; and in the event that any officer of the United Mine Workers of America or other employee at the mine should cause a mine or any part of a mine to shut down in violation of the agreement made Apr. 1, 1915, then each member of the United Mine Workers or other employee except those continuing at work shall have deducted from his earnings the sum of \$1 per day for each day or part of a day he remains idle. On the other hand, an operator locking out the men for the purpose of forcing an agreement over a grievance is made subject to a fine of \$1 per employee for each day or part of a day the mine or any part of the mine is thrown idle.

On Nov. 3 representatives of the United Mine Workers in Daviess, Ohio, Muhlenberg, Christian and McLean Counties, in western Kentucky, met to arrange for an increase in wage in which practically all the mine workers in western Kentucky will share. Only one operating company in Daviess County is opposing the unionization of its workingmen, and a strike of union men in other mines in the county is threatened unless an agreement is effected.

More Wages and Closed Shop

Of course, the anthracite mine workers want an increase in wages to accord with that just granted in the bituminous regions. From all accounts, the operators are quite willing to grant it if they can get the right to recoup themselves by a fair increase in prices. In fact, the operators stand to gain by any increase in wages that will assure them that their mine forces will not be depleted by rival industries nor mentally disturbed by stories regarding the more generous payment received by those who have temporarily left the mines.

Anthracite Men Make Closed Shop Leading Issue

So the conference between anthracite operators and mine workers at the Raleigh Hotel, Washington, D. C., naturally loses much of its public interest. The wage increase is the cause of the conference, but hardly an issue, for the determination on the part of the mine workers to seek a closed shop is the issue, and yet not the cause of the conference.

An informal discussion at their hotel of the case to be presented by the mine workers was held on the morning of Nov. 8. In the afternoon the union men and the employers, through their representatives, went into conference, Samuel D. Warriner, president of the Anthracite Board of Conciliation and president of the Lehigh Coal and Navigation Co., occupying the chair, and James A. Gorman, the secretary of the conciliation board, serving as secretary of the conference. Mr. Warriner made an address of welcome; otherwise none of the operators had anything to say during the progress of the session.

Future Prices Urged as Reason for Increase

The presidents of the three districts—John T. Dempsey, District No. 1; Thomas Kennedy, District No. 7, and James Matthews, District No. 9—in succession presented their case to the operators, pleading the increased cost of living. They argued that wages should be increased not only because prices of necessities are high, but because they were almost sure to go higher. There was no disposition to present the argument as an ultimatum, though it is almost certain that if the increase in wage is not granted the mine workers will refuse to be bound by their contract. They have not arrived as yet to the moral exaltation that enables a man to keep a contract to his hurt.

The upshot of the preliminary session of the conference was the appointment of a smaller and therefore more manageable body—the joint committee—composed of three district presidents and three representatives of the operators. The operators on the committee are S. D. Warriner, aforesaid; W. J. Richards, the president of the Philadelphia & Reading Coal and Iron Co., and W. L. Connell, president of the Connell Anthracite Company.

Go To See Dr. Garfield, Who Passes the Buck

The joint committee realizes that the whole question of wage increases rests neither with the mine workers nor with the operators, but with the Fuel Administrator, Dr. Harry A. Garfield; both parties may propose, but in the end the Fuel Administration disposes. So as the disposition of both parties has been to accept an arrangement declared satisfactory in the bituminous region by Dr. Garfield, not so much in words as in his official acts, there seemed no good reason to beat about the bush in seeking an adjustment in the anthracite region. There could hardly be any talk of collusion between the contracting parties, so they took the matter to Dr. Garfield direct just as soon as the joint committee was formed, but without any result. Dr. Garfield as usual was not ready to declare his purposes, but wanted the mine workers and operators to reach a conclusion among themselves.

Men Strike Regardless of Penalty

The value of the penalty clause in the new contract is not going to remain untested long. Probably it will not work better now than it has in the past. It may get a lot of credit due rightly to other causes, including—in the East especially

—the patriotism of the mine workers, but it will hardly keep the men steadily at their work.

The mine workers of Illinois promised by their representatives and sureties that they would accept the penalty clause "in the spirit of the agreement entered into between the operators and miners at Washington, Oct. 5, 1917. But with the ink barely dry the promise not to strike is already violated at one mine.

The men at the mine of the People's Coal Co., Lebanon, Ill., struck on Nov. 8 because they wanted their wages raised from Oct. 29 though their contract provided the increase from Nov. 1. The mine workers say with some truth that the operators received a 45c. increase on Oct. 29 and therefore could afford to give the mine workers the increase from that date. But surely the men had no right to strike for something for which their contract did not provide. It is true many operators did more wisely and liberally than the People's Coal Co. They granted the increase in wage so that it synchronized with the increase in price.

Strike Just as Futile as It Was Unpatriotic

Nothing is more futile than this strike for something to which the men could not prove title and which at best could only be worth a \$5 bill to each individual. A day's idleness even without the fine would rob the striker of the whole amount thus sought. The mine workers demanded that the company refund the 45c. of the increased price that has been collected of customers. Should this be done they agreed to continue at work—until, of course, they want to strike again. They did not receive a satisfactory reply and so refused to enter the mine. Dan Pollock, of Belleville, a union leader, ordered them to return to work pending a ruling on the matter, and they are now back in their working places.

The officials of the company declare that they will not collect the fines until the wage question has been settled. In this they violate their agreement as we read it and lay themselves open to a fine. The mine is small and unimportant. The trouble is merely symptomatic and in itself entirely negligible.

Peoria Men Protest Against Penalty Clause

The following facts are more vital. Thirty-five unions met a few days ago at Peoria, a point quite distant from Lebanon, which is near St. Louis, in St. Clair County. They passed resolutions protesting against the penalty provision. Five Peoria local unions were censured for voting to accept the clause. Petitions are being circulated throughout the State in opposition to the penalty provision.

From all of which indications it would appear that the penalty will work but badly in the State of Illinois. As a corrective, patriotism alone remains, but is it too severe to say that patriotism is at a low ebb in the mine villages of that state? The way in which it has broken down under the strain of self-interest appears to prove it.

Only a Sleeping Clause Would Satisfy Them

In the contract made in the year 1916, applicable to Peoria County and St. Clair County among others, appear clauses 20b, c and d, as follows:

(b) Any employee or employees guilty of throwing a mine idle or of materially reducing the output of a mine, by failure to continue at work in accordance with the provisions of this agreement, for the purpose of enforcing some demand in violation of this agreement or to force a decision in some case in dispute by methods other than as provided for herein, shall be fined \$5 each. For the same offense other than to enforce such demand or such decision, he or they shall be fined \$1 each for each day so idle.

(c) Any operator who shall lock out all or any material part of his employees in order to enforce some condition in violation of this agreement shall be fined \$100.

(d) All fines collected as above shall be paid, one-half to the state treasurer of the United Mine Workers of America and one-half to the secretary-treasurer of the coal operators' association concerned, and under no circumstances shall any fines so collected be refunded except when mutually agreed to by the two organizations.

It is clear therefore that the penalty clause is nothing new. The mine workers have nothing against it whatever—except its enforcement.

Editorials

AS THE war progresses, we are gradually suiting the pupils of our eyes to the profundity of its darkness. At one time, the public was told by one of the officials called to assist in the prosecution of industry during the war that municipalities should go on with their roadwork and building as usual, so as to keep everybody employed. No one is arguing in that way now. Everybody now knows that public and private buildings and utilities must only be erected where they are needed for the prosecution of some new war industry or to provide for its extension.

* * *

The talk is now all in favor of sumptuary laws. Soon unnecessary house building and needless house decoration will be forbidden. The boys are in huts, and till the war is over we shall be disposed to live in huts with them, though like them we shall live in what comfort we find at hand near the forefront of the work we are undertaking.

* * *

THE banks compelled to choose between industries when granting their credits will cut off those industries which just now serve no great national purpose. So long as only these industries suffer by the large investments of the banks in Liberty Bonds, few will regret the change. It is true that the large restriction of credits, the larger investments in securities by the banks in lieu of cash holdings and the reduction in the value of industrial stocks and bonds would, under normal conditions, shake the credit of our banking system. In the present crisis, however, despite all these unfavorable conditions, it is likely the banks will get stronger and safer than ever.

* * *

They are buying Liberty Bonds in large quantities, and these pay a fair rate of interest. If there is a run on any bank, the Liberty Bonds can be sold without loss or difficulty at par or almost par value, or the bank can even pay them out in lieu of currency. This tends to steady the banks. They have never before held so many really high-grade bonds as they do today. These bonds are so good that no bank could lose if it came to the aid of the crippled bank to the full measure of the Liberty Bonds held.

* * *

So while the large purchases of Liberty Bonds for private account and for the account of small purchasers might seem a strain on our finances, it seems far more likely that they will do more to strengthen them than did the institution of the Federal Reserve Boards. A large amount of cash capital has been invested by the banks with perfect safety because it has been possible to replace cash balances by the safest of all securities.

* * *

There are many people who hesitate between buying Liberty Bonds and paying off debts. There is really little or no choice between either principle of ac-

tion. The man who pays off a debt enables the bank to buy Liberty Bonds and so contributes his quota to victory. It is the man who saves who helps the nation to win the war—no matter whether his savings go to buy Liberty Bonds or the stocks of war-worthy industries. Financially, little matters but saving. Within limits our penuriousness can excusably be pushed so far that when the war is ended our buildings and our plants will be in sad need of overhauling.

* * *

THE working man and his employer are not simply to be asked for a large production. The need of the nation requires them not only to produce more, but to limit their consumption of nonessentials. In fact, operators will fail to do their duty if they do not succeed in inducing the mine workers to buy Liberty Bonds with, or place in the bank, every cent of the wage increase. And this saving should commence at once. It was unfortunate that the Liberty Bond campaign was over just a few hours before the increase in wage was granted to the mine worker.

* * *

It is to be feared that the mine employees will get shaken down to the new wage without considering its bearing on the Liberty Loan. Some will work as steadily as ever, will make more money and will spend it all. They will get habituated to the new scale of living. Others will work less steadily and make just what they did and become habituated to shorter hours of work; whereas all should work harder than ever, make more money, spend less—not more—and have a part in the national victory.

* * *

THE man who only produces more and consumes more is not advancing the nation at all. For every step he goes forward, he takes a step backward. It is not the tonnage of a mine that counts; it is the balance sheet at the end of the year that tells the tale. So it is not so much output that we as a nation need, as excess of output over domestic needs.

* * *

Clearly then, we must bring these domestic needs down to the irreducible minimum and put the output up to its maximum figure. This will not be done till the mine workers and other working men keep ever before their minds either Liberty Bonds or the shortly-to-be-issued war saving certificates. The purchase of these securities must be made the object of all the work in the mine and the factory, and must regulate the conduct of all the affairs in the home.

* * *

As the warrior thinks of victory and lives in its achievement, so the miner must think in terms of financial prudence and live for the purpose of buying the securities offered by the Government. His work, like the work of the soldier, is measured in terms of the assistance he is giving to victory.

Produce the Coal

EARLY in the present world conflict the statement was made that coal would decide the struggle. The force of this statement may at first be obscure, but it is probably none the less true.

This is admittedly a war of machinery—a war, not only of battleships and railroads, but of manufacturing resources, of motor trucks and tractors and tanks. It is safe to say that practically all of the world's coal is produced by the countries now engaged in the titanic struggle. It is significant that almost the first move of the enemy was to seize the coal fields of Belgium and northern France. The next was to overrun the oil fields of Rumania. The vandal Hun thus gained control of the fuel resources of Continental Europe, with the exception of the coal- and oil-producing regions of Russia.

The Russian coal fields are not far removed from those of the Teutonic allies, and should the deluded Muscovite in the senseless ardor of his pacificism conclude the peace which he now thinks he wants, it is probable that either these fields or their product would fall into the hands of the Central Powers. From the world-production standpoint they are fortunately insignificant. The Russian oil fields, on the other hand, are so remote from the enemy's territory as to be fairly safe from at least immediate seizure.

We, of course, know not what has been the output of enemy coal mines—original and captured—since the war began. It is probable, however, that the output has not at least materially increased and has quite possibly decreased since the commencement of hostilities, because of the military requirements for men proving a serious drain upon all industry.

Of the many nations now arrayed against Prussianism, the United States is by far the greatest producer of coal. It is probable that during the current year this country will produce in the neighborhood of one-half the output of the entire world. It is doubtful if the Central Powers will mine more than 20 per cent. of the world's output. The balance will be made up almost entirely by Great Britain, Canada, Australia, Japan and China. Thus about 80 per cent. of the world's coal this year will be mined by this country or its allies, while only about 20 per cent. will be produced by the enemy.

If production were the only consideration, it will be readily seen what a predominance would exist in favor of the Allies. Unfortunately, Germany's coal lies close at hand and is immediately available, requiring little transportation. In order to be available to France and Italy, ours, on the other hand, as well as that of Great Britain, or any of the other of our allies, must be transported over seas. From the military standpoint, also, Germany makes much more efficient use of its coal than we do, since a much larger proportion of it is coked with recovery of the byproducts, many of which, such as trinitrotoluol, are military necessities. We and our allies are thus at a disadvantage.

Since it takes coal to transport coal, or any other commodity, either by sea or land, and since our biggest problem today is one of transportation, it devolves upon each of us to produce as much coal as possible. An abundant coal production will undoubtedly shorten the war. Every day that hostilities are shortened means

the saving of the lives of some of our boys "over there." He who for any reason whatever, therefore, fails to produce daily all the coal that he possibly can, lengthens the war, contributes to a needless sacrifice of life and gives aid and comfort to the enemy.

"Down in a Coal Mine, Underneath the Ground"

A LOT of maudlin rubbish is written about the coal miner and is peddled by him around the country for public consumption. But every job has its favorite "wheeze." The editor is prone to write rubbish about the miseries of his work; and as he sometimes writes it well, it is read, if not just exactly believed. Yet he has his tribulations also.

Similarly, the miner has many troubles; but among them is not having to go underground or being deprived, like some "Prisoner of Chillon," of the light of day and a breath of the upper air. For, once a mine worker always a mine worker. Miners may leave the mine for a while, but if they once enter it to work, it always "gets them." They are not content out of it.

This seems strange to a layman. He thinks it a peculiar fascination, but it is not. The miner likes the mine as the citizen of the Golden Gate likes California. The equable temperature of a mine gives the miner no unpleasant surprises.

At some of the smaller mines, it is customary to take men from the inside of the mine to help the surveyor when helpers are needed. One would think these poor benighted denizens of the subterranean regions would be delighted to change the darkness for the day, but surveyors tell us that were it not for fear of dismissal or from a desire to oblige, they could not get a single man to drag a chain tape under a summer sun or during the winter's frost. They also say that the mine worker as a chainman in summer has an unquenchable thirst. He cannot accustom himself to the parching effect of a warm summer day.

And so he goes to the surface work unwillingly, though his poem about "Down in a Coal Mine, Underneath the Ground" may be recited with moving pathos, at work, at rest or in union councils.

One would think, to hear it, that the mine worker would leave tomorrow for the farm if only he had a chance. But he doesn't, though as a rule there are farms a-begging, as the company has a lot of farms it wants tilled the title to which it did not really seek, but which it acquired as a protection against damage suits or as a means of securing the coal which could not be bought as a separate possession.

Seldom does the miner seek a change, so his annoyances are not considerable. He lives to a good age unless a falling rock or an explosion cuts his life off prematurely.

To most mining men the hours spent traveling to and from work are the most harassing he endures. The long trip to the mine in the oppressive heat of summer or in the chill morning air, and the equally long trip home in the sultriness of the declining midsummer day, are his principal troubles. The oven-like heat that assails him at the mine or shaft mouth is by no means welcome. His mine clothing is usually either too heavy or scant to be comfortable under the ruling surface conditions.

Department of Human Interest

Miner Gardeners Do Their Bit

The mine workers of the Winding Gulf Colliery Co., Winding Gulf, Raleigh County, West Virginia, have been extremely energetic in the planting of gardens, E. C. Berkeley, the superintendent, being an enthusiast on that subject. A prize display of the product was made and finally shipped to Beckley, the county seat, where it was placed in the Raleigh County Bank for almost two weeks. It attracted much attention and furnished a valuable tribute to the ability and patriotism



GROWN IN A MINE GARDEN, WINDING GULF, W. VA.

of the gardeners of the village of Winding Gulf. We honor and appreciate too little those who do well, and then wonder how their tribe decreases. Men will rarely be found to do things well so long as the public by its indifference inadequately recognizes the industry of its benefactors. The Winding Gulf Colliery Co. and Mr. Berkeley are determined that due honor shall be paid to those who by their energetic work add to the food supply that is so great a need during the war.

What One Company Is Doing for Its Employees*

BY ESTHER B. SCHUBERT†
Hopewell, Virginia

Nestled in the beautiful mountains of McDowell County, West Virginia, are the homes of many employees of the United States Coal and Coke Co. The company has always contended that a man's efficiency in his work will improve in direct proportion to the betterment of his living conditions. In other words, provide a man

with proper living conditions, and his work will benefit. The workman, his wife and his children will have better health, thus insuring steady work for the man and happier and more congenial homelife for his family.

The homes that the United States Coal and Coke Co. provides for its employees are well built. They are finished with plaster inside, and the woodwork is painted. These houses are far above the average coal miner's homes, being lighted with electricity, and each house has running water supplied by a deep well system. The houses are of two, three, four and six rooms, the rents being reasonable, depending upon the size of the house. The houses are inspected regularly by a house repairman, who makes necessary repairs. The company also employs a sanitary inspector, who inspects the sanitary conditions around the homes. The results noted from these inspections are very gratifying, the homes always being in good condition, and the general sanitation around them very good.

HONOR TO THOSE WHO DECORATE VILLAGES

The company encourages the occupant of the house to beautify the lawn and to grow a vegetable garden. Prizes are offered for the best flower and vegetable gardens on each plant, thereby stimulating interest. A good vegetable garden means that the high cost of living is reduced, and insures the employee fresh vegetables during the hot summer months. In many cases enough vegetables are grown to supply the summer needs and to allow the canning of sufficient to supply the family during the winter months. Interest is stimulated in the growing of flower gardens, and the general appearance of the town is better and brighter. The dull, gloomy look of the usual mining town disappears, and in its stead rises the fresh, bright, sweet-smelling flowers; and the beautiful green lawns replace the clay and coal dirt.

For more than three years the company has employed a welfare worker, whose duty it is to look after the welfare of the many families. She makes regular visits to the 1063 homes, comprising the company's 12 plants. The object of these visits is to teach the mothers cleanliness, the proper preparation of food, the proper method of clothing the children, the proper ventilation of the home and how to care for the sick. To be successful in this work, the welfare worker must first win the confidence of the mother. This is done in various ways, usually through the children. For instance, the welfare worker often takes one of these little ones with his clothing and face so dirty that he does not even look human, gives him a bath, arranges his hair, and in fact dresses him as he should be.

The pride of the mother is aroused by seeing him neat and clean, and she consequently makes a greater effort to keep the family clean and better dressed. Once you have won the heart of the mother, you have her cooperation for all time. In many cases the foreign homes

*Paper prepared for submission to the Southwestern West Virginia Round Table, Welch, West Virginia.

†Welfare worker, United States Coal and Coke Co., Gary, West Virginia.

reveal customs harking back to ancient times; for instance, that of binding the infant to a board by yards and yards of cloth, and unbinding it only once a day. These parents act under the false idea that this method makes the baby straight and strong, though several deaths have been traced to this custom.

The welfare worker must win the confidence of the mother before she will be permitted to unbind the baby for even a short time. It often takes many visits at various hours of the day and night to succeed in getting the baby unbound. Once the mother is made to realize the danger of this practice, and the child is dressed as an American child, she never resorts to this cruel method again. It is interesting to go to a home where this practice was once in force and note the proud expression on the face of the parents when they say, "Me got 'Merica baby."

HOW SHALL HOUSEWIVES KNOW WITHOUT TEACHERS?

The company has furnished two of the three-roomed cottages as model homes. They are cozy and comfortable and were furnished at a total cost of \$115 each. The welfare worker holds regular classes for the mothers and children respectively, the average attendance of the mothers being twenty, composed often of ten different nationalities. This means that the teaching must be done largely by demonstration. The mothers are taught what and how to buy for the home, and how to sew and cook. The children are also taught to sew and cook, and it is interesting to note that the foreign boys do not consider it beneath their "boyish dignity" to learn to cut and make their own waists, attaining a proficiency to even working the buttonholes. Several of the boys are better "seamstresses" than some of the girls. On Sunday the boys and girls gather at the model cottages to enjoy the papers and magazines, and to learn their Sunday-school lesson. These homes are open at any and those in control are ready at all times to advise the employees on any subject possible.

It stands to reason that sooner or later the employees realize that the company is doing this for their betterment, and it does not take long for the "doubting Thomases" to fall in with those who are already deriving the benefits, and to take advantage of this great work, which is absolutely without cost to them.

America has been rightly spoken of as "the melting pot of the world," and the United States Coal and Coke Co. cannot be extended too much praise for playing this part in the making of future Americans.

Human Equipment Comes First

The tippie that is illustrated in Fig. 1 is perhaps not a marvelous exhibit of mining engineering, but the scene at the foot of the tippie shows clearly that with the White Star Mining Co. "Women and children first" is now the slogan not only of the sea and of peril, but of the land and normal times.

We wonder if this White Star concern is a marine company that it takes its name from a large trans-

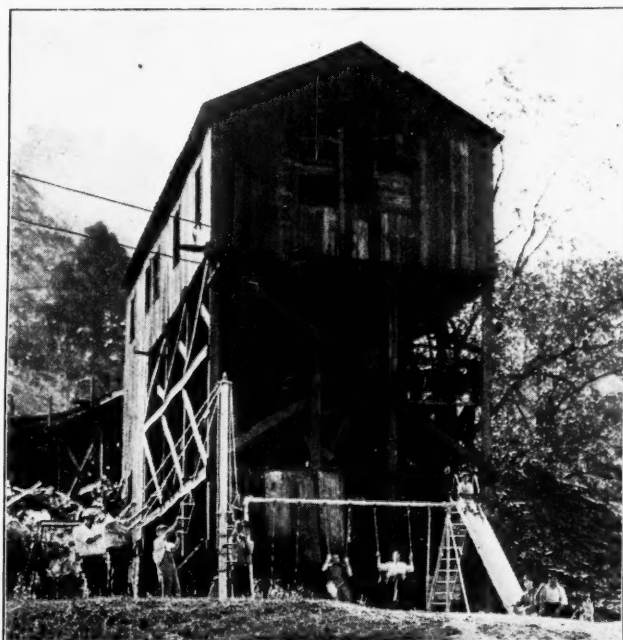


FIG. 1. PLAYGROUND OF THE WHITE STAR MINING CO.

atlantic firm, has so much care for the women and children, and calls its town Merrimac? Whatever it is, its care for playgrounds marks a welcome change in viewpoint. No country is ever great if it neglects in any way the quality of its best product—the boys and girls who must carry on later its industry and government.

The surroundings of a tippie are neither the cleanest or the safest of places for a playground, but in extenuation it may be said that at the foot of the mountains of West Virginia there is hardly any room for a choice of sites, as level ground is hard to find. Too often the houses are perched on steep side hills—this being the penalty for the privilege of living in one of the most beautiful states in the Union.

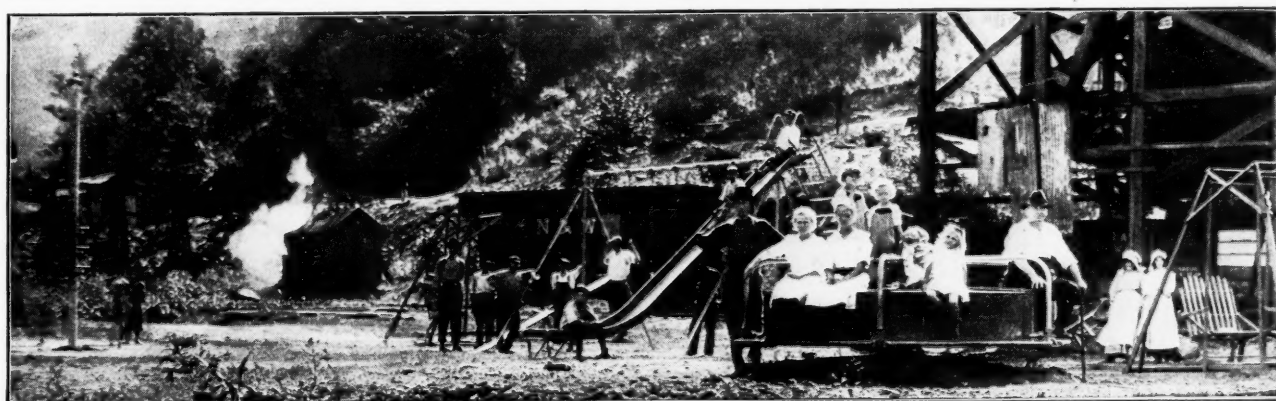


FIG. 2. A PLANT IN THE POCAHONTAS REGION WHERE GOOD CARE IS TAKEN OF THE NEEDS OF THE KIDDIES

Legal Department

Legal Decisions

Abstracted by A. L. H. STREET

Attorney at Law, Minneapolis, Minn.

Coal Plant Operations as a Nuisance—The business of conducting a colliery being a lawful one, the owner is not liable for incidental annoyances to near-by property owners, if the plant be operated in the ordinary way, and the usual precautions to avoid unnecessary annoyance to near-by property owners be adopted and maintained. Even when a colliery is operated in such manner as to constitute a nuisance, a complaining property owner must show that he sustains peculiar injury not common to the public at large before he can maintain suit in his own name to abate the conditions complained of. (Pennsylvania Supreme Court, *Alexander vs. Wilkes-Barre Anthracite Coal Co.*, 98 Atlantic Reporter, 794.)

Remedies of Parties to Coal-Mining Leases—A court cannot order specific performance of a coal-mining lease, as by compelling the lessee to mine and remove coal under the contract; the only remedy of either party for a breach of the contract or for fraud is a cancellation of the lease and a claim for damages. (United States Circuit Court of Appeals, Fourth Circuit; *Browning vs. Boswell*; 215 Federal Reporter, 826.)

Concurring Causes of Mine Explosion—When a coal operator permits dust to accumulate in a mine in violation of state law, he may be held responsible for death of a miner in an explosion of such dust, although the immediate cause of the accident may have been carelessness of coemployees of decedent in the manner in which they prepared and fired shots. (Oklahoma Supreme Court, *Great Western Coal and Coke Co. vs. Cunningham*, 143 Pacific Reporter, 26.) In another decision handed down by the same court in a companion case, *Great Western Coal and Coke Co. vs. Coffman*, page 30, it is held that an employee cannot be deemed to have assumed the risk of being injured through his employer's failure to comply with statutory safety requirements.

Injury Caused by Falling Coal—Where a large piece of coal was permitted by a driver employed by a coal company to fall from a wagon which he was unloading and roll down a hillside where it struck plaintiff, negligence on the part of the driver may be presumed from the occurrence of the accident, rendering the company liable, especially if, on account of the presence of several people below, the danger of permitting coal to fall was apparent. (Utah Supreme Court, *Furkovich vs. Bingham Coal and Lumber Co.*, 143 Pacific Reporter, 121.)

Safety of Platform as Working Place—A coal company's employee, who was directed to work on a platform on a tippie in the construction of an alteration, was entitled to assume that the company had used ordinary care to make the place reasonably safe, except so far as there may have been an obvious defect in the platform, and was not bound to make an inspection of the place before proceeding to work. (Kentucky Court of Appeals, *Interstate Coal Co. vs. Shelton*, 169 Southwestern Reporter, 546.)

Effect of Illinois Mine Law—The duty of an Illinois operator to have its mine examined and dangerous places marked in the interest of safety of its employees extends to a case where men are engaged in cleaning up a mine after a suspension of operations for several months, although they perform their work under general directions from the mine examiner to make dangerous places safe. (Illinois Supreme Court, *Wilson vs. Danville Collieries Coal Co.*, 106 Northeastern Reporter, 194.)

Causal Connection Between Negligence and Injury—A miner was injured through falling of a rock while he was reaching in the sump of a shaft to remove the wheel of a car, after it had just come off because the linchpin on the axle had been permitted to remain off. Held that there was no such direct connection between any negligence of the operator in failing to see that the linchpin was in place and the accident as to permit recovery against the operator for the injury on the ground of such negligence. (*Jenkins vs. La Salle County Carbon Coal Co.*, 106 Northeastern Reporter, 186.) [In this case the Illinois Supreme Court reversed a decision of the Illinois Appellate Court to which reference has been made elsewhere in this department of "Coal Age" as holding that the negligence might be deemed to be the actionable cause of the accident—Editor.]

Damages for Wrongfully Removing Coal—In a suit to recover for wrongful removal of coal from plaintiff's lands by plaintiff, the value of such coal in place is properly estimated upon the basis of so much per ton, if it appears that through the location of the coal, its proximity to mining operations and its accessibility to market, it had a market value for operating purposes at a certain price per ton. (*Hilty vs. Saltsburg Coal Mining Co.*, 55 Pennsylvania Superior Court Reports, 104.)

Injury Caused by Descending Cage—There can be no recovery for death of a miner who was crushed by a descending cage in a shaft, where he attempted to pass under it, the place being adequately lighted and he having been thoroughly acquainted with the surrounding conditions. (Pennsylvania Supreme Court, *Budnar vs. Mineral Railroad and Mining Co.*, 91 Atlantic Reporter, 944.)

Right to Mechanic's Lien for Furnishing Coal—A retail coal dealer who furnishes coal for use by a building contractor in operating hoists, etc., is entitled to enforce a mechanic's lien under the laws of Minnesota against the property for the improvement of which the fuel is so used. (Minnesota Supreme Court, *Johnson vs. Starret*, 149 Northwestern Reporter, 6.)

Injury Caused by Falling Lump of Coal—Where a miner was injured through fall of a lump of coal while he was at work at the bottom of a compartment of a shaft, the operator may be held liable for the accident, if it appears that the accident was directly attributable to negligence in overloading cars sent up in the other compartment of the shaft, or in carelessly omitting to take proper precautions to avoid such accidents. (Oklahoma Supreme Court, *Osage Coal and Mining Co. vs. Miozany*, 143 Pacific Reporter, 185.)

Injury to Occupant of Coal Company House—A person who occupied a coal company's house cannot recover for injury received by a defective condition of certain premises, without showing, not only that the condition was one under the control of the company, but that it knew of, or in the exercise of ordinary care, ought to have known of, the defective condition. (Kentucky Court of Appeals, *Amburgy vs. Pond Creek Coal Co.*, 169 Southwestern Reporter, 855.)

When Negligence Is Presumed—Negligence of an operator in failing to maintain a mine roof in reasonably safe condition will be presumed from the fact that slate fell from it at a point where it was the operator's duty to maintain the roof in reasonably safe condition, if it appears that the miner injured by the fall has done nothing which could have caused the accident. (Kentucky Court of Appeals, *Main Jellico Mountain Coal Co. vs. Young*, 169 Southwestern Reporter, 841.)

Duty to Prop Mine Roofs in Kentucky—The Kentucky law respecting furnishing of caps and props by operators for the support of mine roofs does not prevent the duty of propping roofs being placed upon either the miners or the operator, as may be determined by agreement or custom. (Kentucky Court of Appeals, *Denney vs. Old Diamond Coal Co.*, 169 Southwestern Reporter, 1016.)

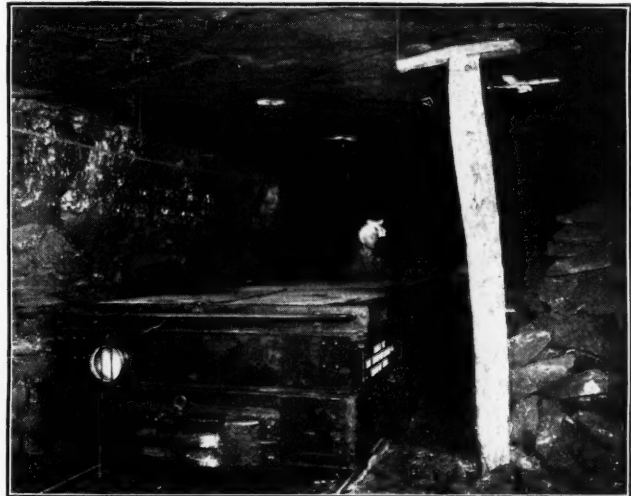
Liability of Coal Mine Receiver—A receiver of a coal-mining company is not liable for loss incurred in operations under the receivership, unless the same is attributable to some fault on his part. (Arkansas Supreme Court, *German National Bank vs. Young*, 169 Southwestern Reporter, 1178.)

Safety of Employees in Coal Unloading—In affirming judgment for defendant employer in a suit for injury to an employee who fell off a stage while assisting in unloading coal from a vessel, under circumstances which tended to show that the latter was intoxicated, and that that, and not claimed defective condition of the stage, produced the accident, it is held: "It is the undoubted rule that it is the duty of the master to use reasonable care to provide a reasonably safe place for his servant to work in. It is also the rule that the servant assumes the risks which are ordinarily incident to his employment, and such other risks as are known to him, or which, by the exercise of ordinary care, he ought to know. He assumes the obvious risks. These principles have been declared so many times that citation of authorities is unnecessary. (Maine Supreme Judicial Court, *Lindsay vs. Spear*, 91 Atlantic Reporter, 981.)

Snapshots in Coal Mining



VULCAN LOCOMOTIVE USED AT STRIPPING OF NEW ENTERPRISE COAL CO., NEAR MARION, ILLINOIS



LOCOMOTIVE STARTING INTO AN ENTRY OF MCGREGOR COAL CO., SLAGLE, WEST VIRGINIA



THEY DRIVE 'EM ANYWHERE THESE DAYS

The much-abused Ford automobile has been driven all over the face of the earth, but we believe the first one to venture into a coal mine is shown in this photograph, which was taken in Wyoming, at the Monarch mine of the Monarch Coal Mining Co. Incidentally, the Monarch company operates in the thickest bituminous coal in the United States. At the point where the picture was taken 18 ft. of the seam has been taken out, leaving a balance of 16 ft. that will be recovered later.

Discussion by Readers

Miners and the War

Letter No. 1—Looking over my file of *Coal Age*, recently, I chanced to find, among the letters suggesting different methods of improving the coal industry, Vol. 10, p. 507, one of my own, expressing the belief that the thing most needed was Government control through a commission. With the becoming modesty that is so characteristic of all mining men, I may be pardoned for referring, here, to my suggestion of a year ago, since the developments in the present war crisis have confirmed its truth.

The statement, made at that time, reads as follows:

The greatest need in the coal industry, today, is a national governmental (not political) commission, with substate commissions, which would first inventory the coal resources of the nation and then regulate the coal output so that conservation would be an absolute necessity. The power of this commission should be extended over prices and distribution in such a manner that thin-seam coal could successfully compete with the rich veins and a prohibitive premium put on the wasteful methods, which are often unprofitably devastating our rich coal fields through practices based on unscientific distribution.

The prediction was one that could hardly be expected to be fulfilled within the short space of a year. Candidly, I had no such expectation myself, but felt safe in the thought that anybody can generalize on a proposition and get away with it at the time, although, like the chickens, it may come home to roost. A suggestion that the greatest need in the coal industry is that all miners should instinctively put the interests of their employers above their own, and, likewise, that all operators should regard the welfare of their employees as the primary consideration, rather than making dividends for stockholders, one would have said would have had a better chance of being realized than the one made in my letter a year ago.

ANALYZING POST-BELLUM CONDITIONS

However, putting the prediction aside, we are now face to face with the fact that the Government has appointed a national commission authorized to enforce regulations almost identical with those just mentioned. It is evident that this was deemed essential to the successful prosecution of the war and the greatest need of the coal industry, as being the base of all operations.

The question naturally arises, now, What may the coal-mining industry expect when the war has ended and the Kaiser and his cultured cutthroats are eternally buried in the gob, where they will be squeezed into oblivion by the weight of the condemnation of four-fifths of the world? In other words, What will be the sequel to the Governmental regulations of coal mining when the dove of peace again holds sway?

Although our energies are, now, wholly directed toward the winning of the war, it may not be regarded as too previous to give thought to this important question. Let me suggest that it is possible that the demand for coal, during the period of readjustment following

the termination of the war, will be as great as if not greater than at the present time. Any discussion that will tend to clarify that situation and minimize the difficulties that it may be expected such a condition will present will be of interest to all mining men and the community at large.

To start such a discussion, allow me to suggest that, in spite of the somewhat chaotic condition of the coal industry at the present time, Governmental regulation of the mining and distribution of coal supplies throughout the country possesses the following advantages:

1. Government regulation will bring the producer and the consumer into a closer relationship.

2. The need of conservation of all fuel supplies will be impressed on both the producer and the consumer alike, in a manner that could not otherwise be fully realized.

3. The difficulties of seasonal demands for fuel and car shortage will be minimized.

4. Uniform accounting methods will be established that will increase the value of statistical reports from all coal-mining states and districts.

5. Differences between capital and labor will be minimized.

These suggestions are offered in the hope that they will lead to others of equal importance that will bring the entire present and prospective situation clearly to view, so that its possibilities and probabilities can be thoroughly discussed.

P. L. MATHEWS.

Santo Tomas, Tex.

Test of a Man's Capability

Letter No. 3—"Mule Driver," in his letter, *Coal Age*, Oct. 13, p. 642, seems to imply that the foreman who can judge correctly as to the capability of men to drive a mule or perform other work in a mine is a qualified mine foreman. But, that same foreman may be deficient in many things that are of more importance than driving a mule.

It would be rather difficult, in my opinion, to prescribe a single test of any kind that would prove a man's capability for any position. He might be proficient in one test and yet fail in others. I believe most mine foremen possess some good qualities and, while doubtless all are liable to make mistakes, few really capable foremen ever make the same mistake twice.

A foreman may be able to judge wisely from the appearance of new men and say as to whether they would make good mule drivers or good trackmen, while he may have very poor judgment in regard to a dangerous piece of top. I am of the opinion that it will require a number of tests to arrive at the true worth of a mine foreman.

In my judgment the holding of a certificate of competency is not a thorough test of the capability of a mine foreman. The safety of men and mine property

is assured less by the grade of the foreman's certificate than by his practical experience, industry, judgment and forethought. I would not be understood, however, as opposing the granting of certificates by examining boards. In many instances I would make the examination more rigid and limit all certificates to a period of not more than five years.

In my experience as a miner and district mine inspector, I have come in contact with many mine foremen, and have come to believe that, in most cases, technical training and improvement ceases with the securing of the certificate. If the certificate had to be renewed occasionally this would not be the case. Let me say, in closing, that in addition to his practical experience and technical training, the true test of a mine foreman's capability consists in his resourcefulness, carefulness, industriousness, honesty and common sense; and, without these essential qualifications, the mere possession of a certificate of competency does not guarantee that the holder of it is a capable and successful foreman.

JOHN ROSE,

Dayton, Tenn. Former District Mine Inspector.

Qualified Mine Foremen

Letter No. 9—I was greatly pleased in reading the letter of T. J. Aston, *Coal Age*, Oct. 6, p. 591. Mr. Aston has the right idea of a qualified mine foreman and gets down, as we say, to "brass tacks." By way of boosting his idea of a practical foreman, kindly permit me to illustrate the situation by the following incident:

A genuine mine manager (foreman) who had been in charge of a large mine for at least 14 years made up his mind that, owing to the extensive development of the workings, he would have to provide for a more thorough supervision of the work in a certain section of the mine. The question uppermost in his mind was where could he secure the best man for the place.

As Mr. Aston has remarked, "One of the strongest evidences of a qualified foreman is the habit of preparing for the future." In going over the matter, in his own mind, our friend decided on one of his trusted and competent men, as being well fitted for the place; but, unfortunately, the man had no certificate.

A FOREMAN'S FORESIGHT HANDICAPPED

Going to him, one day, the foreman said: "Jim, I am going to need a man soon to take charge of a portion of this mine. Now, I know you can handle the job, for you have an ability to keep things going. All you need is your certificate. Are you willing to tackle the thing? It will require some study and hard work; but, if you get down to business, I know you can make good. Think it over and let me know if you will try for the certificate."

About the same time, the superintendent also made up his mind that another man was needed to assist the foreman in looking after the mine. Talking the matter over with the foreman, he suggested a man who already had his certificate, but who, in the mind of the foreman, would not make the best man for the place. Such a situation is a difficult one, and to handle it in a manner satisfactory both to himself and to the superintendent requires the utmost tact of a foreman.

Instances of this kind are not uncommon in the daily operation of mines, but a good foreman understands better the qualifications of the men in his charge than his superintendent, who sees less of the men and cannot judge as well of their fitness to do certain work as the foreman, who knows all their characteristics and is familiar with their habits. The question of a man holding a certificate is not the only one to be considered in choosing foremen, and no one knows this better than the qualified mine foreman himself.

Crawford, Tenn.

W. T. HALE.

Letter No. 10—Being a mine foreman myself, I was interested in reading the incident narrated by "Mule Driver," *Coal Age*, Oct. 13, p. 642. The letter describes the manner in which two mine foremen judged of the probable capabilities of three men who were seeking work. The men claimed that they could do anything that would be required of them in the mine. The sequel proved that they had all been mule drivers and knew little else and practically nothing about cutting coal with a machine.

The first foreman to whom they applied for work gave them what they asked and started them to cutting coal, with the result that they quickly showed their incapacity for that work. The second foreman, in answer to their request for work and being told that they could do anything required of them in the mine, said: "You look to me like mule drivers. I need machinemen, but can give you each a mule if you want it." The men made up their minds that, as one said, "You can't fool an old head at the business."

PUTTING MEN IN THE RIGHT PLACE

My own experience is that the hardest work a mine foreman has to do is the placing of new men. It is a bad policy to put a new man, whom you know nothing about, in charge of a machine costing anywhere from \$2500 to \$4000. A breakdown is almost certain to follow. Not only that, but the man will not stay long at his job if he does not understand how to run the machine. His quitting suddenly will throw a machine idle and put you to the trouble of looking for another man. In the meantime, the coal is not cut and men are obliged to go home, while the output of the mine suffers from those places being idle.

I do not claim to be able to tell just what kind of work a man is able to do by looking at him, as did the second foreman, to whom I have just referred, and who displayed excellent judgment in sizing up his men. He certainly started in the right way to ascertain for himself the kind of work of which the men were capable. Like him, I have often had men come to me asking for work and claiming that they could do anything required of them in the mine.

My plan has always been to question such men closely before putting them to work, to ascertain what work they have been doing in other places, and discover what knowledge they have of a mine. Men like those just described are usually of a roaming disposition and only want some kind of work that will tide them over and enable them to go on to some other place. They have no tools or money and only hope to be able to put one over on the mine foreman and get a company job that will suit them for a short time.

A qualified mine foreman must be able to place men where they will do the most efficient work, as it is efficiency that counts. A good organization is necessary to secure good results, and much depends on a mine foreman being able to secure the hearty coöperation of all the men in his charge. Tact is necessary to instruct men how to perform their work and avoid careless practices that may cause an accident, by which the men are always the greater losers, notwithstanding the compensation afforded them when injured.

—, Penn.

MINE FOREMAN.

Letter No. 11—I have followed with a great deal of interest and pleasure the discussion of the question of the certification of mine foremen. As has been shown clearly in a number of letters, the qualifications of a mine foreman do not lie wholly in his ability to be able to solve the problems of mining by the theory that he has learned from textbooks. Yet, after all, the rules and principles laid down in the textbooks are the result of other men's experience. It is this fact that makes what is called the "theory of mining" valuable to the man of practice.

It must be admitted that, in all trades and professions, the man who has mastered the theory of his calling is a more capable man and a more efficient worker than the so-called "practical man" who claims to care little for what books can teach him. The work of a mine foreman is better, and is accomplished far easier, after he has acquired the knowledge that enabled him to pass a creditable examination before an examining board and is certified as a qualified foreman who has the knowledge and experience fitting him for the office. Such a man approaches different problems, as they arise in daily practice, from a more intelligent standpoint. He adopts no "hit or miss" methods, but bases his estimate of work on well established rules and principles that he has learned to apply correctly.

CONTEMPT OF SOME PRACTICAL MEN FOR STUDY

One often hears the so-called "practical man" sneer at the man who, by hard study, has gained for himself an education in the principles relating to his work. This is clearly an error, as any reasonable man will admit that the workman who possesses both practical experience and a thorough knowledge of the principles underlying his calling is more competent to fill a position of responsibility than one who has simply the practical experience gained through years of toil.

It is true, of course, that a man may understand the principles of coal mining and be able to repeat rules and formulas relating to ventilation, pumping, drainage, timbering, etc., and be able to describe correctly the strata composing the coal formations, and yet be unable to apply this knowledge in practice, because of his lack of experience in the actual work of mining. With all his knowledge gained by the study of books, he may know little of human nature and possess no tact in the management of men. He is, as the scripture puts it, "like sounding brass and a tinkling cymbal."

In my opinion, the qualified mine foreman must have a fair knowledge of the elementary principles of mining and must be thoroughly versed in the laws relating to the ventilation of mines and the occurrence and

behavior of mine gases. Besides this, his education should be such as to enable him to arrive at a correct estimate of the actual cost of mining operations.

This ability in a foreman will enable him to judge correctly of the relative merits of different systems of haulage, hoisting, pumping, drainage and timbering. It may be argued that this is not a part of the duties of the average mine foreman; but it cannot be denied that when the foreman possesses such ability, it will greatly increase his value to the company and make him a more capable official.

Candidates preparing themselves for a mine foreman's examination are often heard to express the hope that the questions asked will be practical ones. Let me say that this is a mistake on their part. They forget that the practice of men differs widely, according to their training and experience. Thus, a man may answer a practical question in line with his own practical experience; but the experience of the examiners may differ from this and, unless they are broad-minded in their judgment, the answer to this question will be marked down. For this reason, I want to suggest that all applicants prepare themselves for examination by a careful study of the theory of mining. Let every mine foreman's examination deal with the theory and principles of mining, as well as the practical work.

ADVANTAGE TO THE MAN WHO UNDERSTANDS PRINCIPLES

In closing, let me repeat that the man who understands the principles that underlie the work he must perform is in a better position to avail himself of conditions existing in the mine. Such a man is not afraid to assume responsibilities and can offer valuable aid, provided the man higher up is broad-minded enough to try out the suggestions.

In the eyes of his employer, such a man is alert and progressive. He need not be a "sucker" and, it is needless to say, he is not a man that will sacrifice his individuality. It is the man who is not capable and lacks ability that generally crawls when put to the test. The human element enters largely into the make-up of a qualified mine foreman, who must stand between his employer and the men in his charge for whose safety he is responsible. He must have sufficient gray matter that will cause him to lend a listening ear to the grievance of even a door-tender, regardless of whether such grievance is real or imaginary. Such is the future qualified mine foreman, whether certified or uncertified.

AJAX.

Wilkes-Barre, Penn.

Favoritism in Mine Management

Letter No. 1—I remember that, some time ago, the remark was made by a writer, in discussing the evils of favoritism displayed by mine officials in the promotion of men, to the effect that "no one would promote a man unless he was certain that he was qualified to fill the position."

While I do not doubt the sincerity that prompted this remark, I am convinced that the most casual observation would satisfy anyone that men are often appointed to positions for which they are wholly unfitted either by experience or training. One must be blind, indeed, not to have observed this many times in the op-

eration of mines, and the practice is not confined to coal mining. However, such a course pursued by a superintendent or manager usually brings its own reward, and the incapacity of a person appointed on any other ground than that of merit is quickly evidenced by the poor results that follow.

I recall one occasion when a new superintendent, after a few preliminary greetings of the under officials, assured each one that his place was "good to him" if he continued to do as well as formerly. It took but a few months, however, for this superintendent to get his bearings, and then the men became aware that trouble was in store for them. One by one they were asked to resign on some slight pretext, and their places were filled with the friends of the new superintendent.

INSTANCES OF UNWISE MANAGEMENT

To show to what extent he carried his preferences, the superintendent appointed a man to take charge of the cutting machines in all the mines of the company. The man so appointed had never seen a machine operated in the cutting of coal. But, as he was a sensible man, and one that knew more of the requirements of the position to which he had been appointed than the superintendent himself, he relinquished his place voluntarily, after a day or two, when he became satisfied that he was unfitted for the duties required.

It is surprising that coal companies will allow a new superintendent to make sweeping changes in the men in their employ and permit the discharge from their service of others who have served the company faithfully for several years. Nevertheless, it is frequently the case that the company relies wholly on the judgment of the newly appointed superintendent and permits him to follow his own course.

Another instance that I recall is that of a poor old man who had been disabled in the mine and was now employed by the company for picking slate off the cars, at \$2 a day. Under the new superintendent this man was laid off and a relative or friend of the superintendent sent into the mine charged with the duty of inspecting the loading of coal at the working face. He was paid \$3 a day to see that the miners did not load slate with their coal. As a matter of fact, however, the man seldom visited more than three or four places in the mine a day, and many days he did not go inside the mine at all. Correctly speaking, this is not favoritism so much as assisting one's friends and relatives by appointing them to positions merited by old employees, who would do the work more efficiently than the newcomers in most cases.

CHANGES IN THE WORKING FORCE OFTEN COSTLY

By the making of such changes in the working force of a mine thousands of dollars are lost to the company, and much injustice and suffering result from the discharge of old and faithful employees. At times the management of a large company, operating several mines, comes to the conclusion that "a good clean-up at the mines will produce good results." I have seen this tried on several occasions when the expected results were not realized.

Whenever changes are made in the supervision of work, some time is required to acquaint the new bosses with the men and the work in their charge. It is argued

that such changes prevent mine officials from falling into a rut, by acquainting them with other systems and methods of performing the work. However, more good can be accomplished along this line by bringing together the men from the several mines and discussing their different methods and plans of working, thereby interchanging ideas, which is an education much needed by all mine officials.

Many men do not take kindly to working under a new boss and, as a result, a change in bosses frequently means a loss of a number of good miners. Almost invariably, when a foreman is given charge of another mine, instead of falling into the methods and practices used in that mine he starts to introduce his own methods, with the result that considerable expense is entailed in making needless changes.

In many cases, also, the new man does not understand the particular conditions with which the old man had long been familiar, and it is very possible that this lack of knowledge, which the latter had gained by experience in the mine, may increase the cost of operation for a time.

The loss to the company from these causes will generally more than counterbalance what they had hoped to gain by breaking up family connections in the working forces employed in the several mines. Eventually, the friends and relatives of the bosses will drift into their old places, and the net result is a loss.

Heilwood, Penn.

THOMAS HOGARTH.

Working Pittsburgh No. 8 Coal

Letter No. 9—In reference to the request of E. O. Carney, *Coal Age*, Sept. 22, p. 509, who asked for suggestions on developing the Pittsburgh No. 8 coal, I understand he has a large acreage in that seam. The method that I would adopt is very similar to that described by R. Z. Virgin, Nov. 3, p. 774, and differs only in a few details regarding the width of pillars and distances of room centers.

In describing my method, therefore, it will be unnecessary to sketch the plan, the outline of which is identical with that shown in the figure on p. 775, illustrating Mr. Virgin's method. Like him, I would drive four main entries on the butts of the coal. These consist, however, of two pairs of double entries driven on 32-ft. centers and separated by a solid pillar of coal 60 ft. wide, which is broken only by an occasional crosscut to provide convenient connection between the workings lying on opposite sides of the main headings.

There is thus formed practically two distinct mines. Each pair of double entries is provided with crosscuts at the usual distances apart. The two inside entries of each pair are used as haulage roads, while the outside entries are the return entries for their respective sides of the mine.

To the right and left of the main headings, face entries are driven in pairs, on 32-ft. centers. These are separated by a solid pillar of coal 1092 ft. in width. Butt headings are now driven to the right and left of each pair of face headings. These are also driven on 32-ft. centers and separated by a solid pillar of coal 400 ft. in width.

The distance from the main-heading air-course to the first pair of butt headings is 350 ft., which provides

for a 150-ft. pillar flanking the air-course and allows the rooms off the butt headings to be driven to a depth of 200 ft. These rooms are turned to the right and left of each pair of butt headings. The face entries are also protected by a 150-ft. pillar of solid coal.

It will be observed that the distance between consecutive pairs of face headings being 1092 ft. provides for two 150-ft. pillars flanking the face entries, and 24 rooms, which are also driven on 32-ft. centers and opened to a width of 24 ft.; thus, $2(150) + 24(32) + 24 = 1092$ feet.

The purpose of driving entries in rooms on 32-ft. centers and opening the rooms to a width of 24 ft. is that this arrangement provides for two machine cuts on each entry of a pair when driving crosscuts between entries, and a single machine cut when making breakthroughs in the room pillars.

The rooms off the butt entries are turned narrow for 21 ft. and then widened out to the regular width of 24 ft. My plan is to turn the first four rooms, starting No. 1 room 150 ft. from the face entry. Then, skip Rooms 5 and 6 and turn Rooms 7, 8, 9 and 10; again, skipping Rooms 11 and 12, turn Rooms 13, 14, 15 and 16, and so on.

Rooms 4 and 7 are driven in a distance of 40 ft. from the entry before connecting them by driving a counter. Rooms 5 and 6 are then turned off this counter-heading. In the same manner, Rooms 10 and 13 are connected by a counterheading 40 ft. from the butt entry, and Rooms 11 and 12 turned off the counter.

This arrangement provides better protection for the butt headings and keeps them in good condition, until all the coal is taken out between the headings, when the entry stumps and pillars are drawn back to the pillars flanking the face entries.

In closing, permit me to say that I have seen, and also tried, many different systems of working this coal; but none of them has proved so successful and satisfactory as the system I have just described, which I have found has saved much expense in the cleaning up of falls and timbering of rooms and entries.

Moundsville, W. Va.

G. R. WADELL.

Letter No. 10—The opening of a new mine is a matter that should be given the most careful thought and consideration, as the future economic development will depend largely on the adaptation of the method of working adopted and the kind of equipment provided, both of which must be suited to the particular conditions surrounding the proposition.

In many cases, the preliminary work required can only be efficiently executed by an engineer who is familiar with the many requirements of coal-mine development in the district. His knowledge must not only include a thorough acquaintance with the existing geological conditions and the practical operation of mines; but must, also, embrace the requirements of the state mining laws, labor organizations, wage schedules, etc.

The thousand-acre tract referred to in the inquiry of E. O. Carney, *Coal Age*, Sept. 22, p. 509, calls for careful study in respect to its development. Too often it happens, however, that the plans of competent engineers, which have been specially prepared to meet the existing conditions, are destined to be laid aside, and a so-called "practical method" of development is under-

taken with the result that the same old troubles are experienced when the development of the seam has progressed to a point where the prevailing conditions make themselves felt in a manner that both increases the cost of operation and results in the loss of much coal that cannot be recovered.

The No. 8 Pittsburgh coal seam is being mined, today, throughout its length and breadth, by the original room-and-pillar system, with some slight modifications designed to meet the varied conditions. This seam, though a most valuable one to the coal industry, is burdened with a variation of roof conditions that run from medium to bad, as compared with other seams of coal.

The varying character and thickness of the strata overlying this seam compel the operator to adopt a width of pillar and opening that is best adapted to control the roof pressure. Rooms are turned on centers that vary anywhere from 40 to 100 ft., according to the experience and practice of the foreman in charge. Breakthroughs are made from 60 to 90 ft. apart.

When in doubt, it is well to use room centers approaching 100 ft. and make the breakthroughs 80 ft. apart, with a 12-ft. room. The system should be such as to provide a uniformly even gob line. It should be the aim to have as few standing pillars as possible. A uniform system of timbering should be adopted, by setting the posts on $4\frac{1}{2}$ -ft. centers, using extra cross-bars and posts as conditions may require.

GENERAL REQUIREMENTS OF THE PLAN

The general plan of working should provide entries sufficient in number to conveniently handle the desired output of coal and enable the thorough ventilation of the workings when the mine has reached its greatest development, in compliance with the requirements of the mining law relating to gaseous mines. The width of entries and distance between centers will depend wholly on the roof conditions and depth of cover, or the distance the seam lies below the surface. Entries driven 10 ft. wide, on 80-ft. centers, have generally given good results. Roof conditions permitting, this width may be slightly increased where it is necessary to carry a ditch along the side of the road for drainage.

An important feature in driving entries is to keep the entrymen in line with the sights, from which they should not be permitted to deviate. Crooked entries create dangerous haulage conditions, while "slabbing" makes dangerous roof conditions.

From observation, in some districts, it would seem that coal-mine development, on a scientific and economic plan, is almost a lost art. We find most every contemplating operator looking for a system different from the one generally followed in the field. It must be admitted, however, that the results obtained, in the working of the Pittsburgh No. 8 seam, seldom show more than from 60 to 75 per cent. of extraction.

It frequently happens that the best-laid plans of competent engineers fail through lack of organization and discipline in the working force of the mine; and a hazardous and extremely costly operation is the result of a most modern and up-to-date equipment and development. Under competent management this will not be the case, as the needs and requirements for successful operation will generally be appreciated.

South Brownsville, Penn.

G. E. DAUGHERTY.

Inquiries of General Interest

Power Required in Electric Haulage

We have now under consideration the proposition of sinking a new shaft opening at our mine. If this is done, it will reduce the length of underground haul about 1 mile. We contemplate using a $7\frac{1}{2}$ -ton electric locomotive on the main haulage road. The coal is 4 ft. 6 in. thick, and we are using 2-ton mine cars equipped with roller bearings. The track gage is 36 in. The change of location of the hoisting shaft will necessitate hauling the coal up a 1 per cent. grade.

My purpose in writing to *Coal Age* is to ascertain the method of estimating, approximately, the cost per ton-mile for hauling coal under these conditions.

—, Ill.

ENGINEER.

The first step that must be taken in estimating the cost of haulage, in a proposition of this kind, is to ascertain the power that will be required to operate the $7\frac{1}{2}$ -ton locomotive to its full capacity when hauling a trip of loaded cars up a 1 per cent. grade. The capacity of a haulage locomotive is limited by the tractive effort that it can exert, measured at the circumference of the drivers, and this is again limited by the adhesion of the wheels to the rails.

In coal-mining practice it is not safe to estimate the maximum tractive effort of a locomotive to exceed one-sixth of the weight resting on the drivers when hauling on a level track or a moderate grade. Assuming a single-type, four-wheel locomotive weighing $7\frac{1}{2}$ tons, its tractive effort, in mining practice, can be estimated as $\frac{1}{6}(7\frac{1}{2} \times 2000) = 2500$ lb. With sanded rails, the tractive effort may increase to one-third of the weight of the locomotive resting on the drivers. While this is a valuable feature in starting a loaded trip, it is not safe to estimate on so high a factor for continuous operation.

A common rule, in practice, is to estimate the effective wattage of a locomotive, per mile-hour, as double its tractive effort. By this rule, assuming an efficiency of, say 90 per cent. when hauling at a speed of 6 miles per hour, the required input to the motor would be $6(2 \times 2500) \div 0.90 = 33,333$ watts; or $33,333 \div 746 =$ say 45 hp. It will be of interest, however, to estimate the required horsepower of the locomotive, on a more practical basis, by calculating the maximum load it will haul, under the assumed conditions, which will also show the number of cars and weight of coal in a single trip. The method of calculation is as follows:

When hauling on an upgrade, the tractive effort of the locomotive must overcome both the track resistance and the grade resistance, for the entire moving load including the locomotive itself. The track resistance will depend very largely on the type of roller bearings used and the condition of the bearings and the track.

With flexible roller bearings and hauling on a well-ballasted road, the track resistance may be as low as 12 or 15 lb. per ton. It will be safer, however, to

estimate the track resistance as 20 lb. per ton of moving load. Grade resistance, for moderate grades, is 20 lb. per ton, for each per cent. of grade. This makes the total resistance for a 1 per cent. grade 40 lb. per ton of moving load.

Now, calling the weight of the locomotive W_m and that of the loaded trip W_t , the total resistance to be overcome by the tractive effort of the locomotive is $40(W_m + W_t)$ and we write

$$\text{Tractive Effort, } T.E. = 40(W_m + W_t)$$

But, the tractive effort of the locomotive, as previously found, is $T.E. = 2500$ lb., its resistance $40W_m = 40 \times 7\frac{1}{2} = 300$ lb. and the resistance of the loaded cars $40W_t$. These values, substituted in the formula, gives for the weight of the trip this locomotive can haul up a 1 per cent. grade

$$W_t = \frac{2500 - 300}{40} = 55 \text{ tons}$$

The weight of coal hauled in a single trip when the locomotive is operated at its full capacity, under the assumed conditions, may be taken as three-fourths of the total weight of the loaded cars, or $\frac{3}{4}(55) =$ say 42 tons, which makes the number of cars hauled per trip $42 \div 2 = 21$ cars. The weight of coal hauled in each trip is required in order to find the cost per ton-mile.

But, the effective horsepower required to move the trip, including the locomotive itself, is found by multiplying its tractive effort by the speed of haulage expressed in feet per minute and dividing by 33,000. Hauling at the rate of 6 miles per hour, the speed of hauling is $(6 \times 5280) \div 60 = 528$ ft. per min. Taking the efficiency of the motor as, say 90 per cent. the power required for the operation of the locomotive, under the assumed conditions, is

$$H = \frac{2500 \times 528}{0.90 \times 33,000} = 44\frac{1}{2} \text{ hp.}$$

which gives for the current required at the locomotive $44\frac{1}{2} \times 0.746 = 33.155$ kw., as before.

This calculation is based on the haulage of 42 tons of coal at a speed of 6 miles per hour. The work performed by the locomotive is, therefore $6 \times 42 = 252$ ton-miles per hour and requires a consumption of 33.155 kw., per hour. In other words, 33.155 kw.-hr. is, here, equivalent to 252 ton-miles of coal hauled. Therefore, assuming current can be delivered at a cost of 1c. per kw.-hr., the expense of hauling coal, under the assumed conditions, would be $33.155 \div 252 = 0.13$ c. per ton-mile.

This would make the expense of hauling an output of 1000 tons per day at an average distance of 1 mile, $1000 \times 0.0013 = \$1.30$, for current alone. To this must be added, say 10 per cent. for loss in transmission and the usual overhead charges, such as wages of motor-man and helper, cost of repairs and upkeep, etc. Perhaps a fair estimate of the cost of haulage, under the assumed conditions, would be about \$1.50 per ton-mile.

Examination Questions

Mine Officials' Examination,* in Colorado, 1917

(Selected Questions)

Ques.—What time does the law require the mine foreman and fireboss to give to their duties when the mine is in operation?

Ans.—The mine foreman is required (Sec. 47) to devote the whole of his time to his duties in the mine when the mine is in operation. The law requires, also (Sec. 76), that the mine foreman, assistant mine foreman or fireboss shall make a second examination of the mine during working hours, visiting every working place where men are employed.

Ques.—What are the requirements of the law relative to turning rooms in advance of the last crosscut?

Ans.—The law forbids (Sec. 48) the turning of any room or entry in advance of the ventilating current or in advance of the last cut-through in the entry, excepting roomnecks, which may be driven a distance of 10 ft., with the consent of the inspector, by the entrymen driving the entries.

Ques.—What are the requirements when working places reach their destination or boundary or are otherwise stopped?

Ans.—The law requires (Sec. 48) that all such places shall be connected at the face by cut-throughs.

Ques.—What are the requirements relative to air measurements?

Ans.—The mine foreman or his assistant is required (Sec. 49) to measure the air current at least once each week, at or near the main intake and outlet airway, also in the last cut-through in the last room, and in each entry beyond the last room turned. When practicable, these measurements must be taken on days when the men are at work, using an anemometer for the purpose and recording each measurement in a book kept for that purpose.

Ques.—In case of accident to the fan or its machinery, whereby there is a serious interference with the ventilation, what does the law require to be done?

Ans.—The mine foreman is required (Sec. 50) to withdraw the men at once from the mine and not allow them to return until the ventilation has been restored and the mine thoroughly examined by him or his assistant or the fireboss and reported safe.

*The same set of questions were given in 1917 to determine the qualifications of all applicants for the positions of company mine examiner, mine foreman, assistant mine foreman and fireboss, as required by the Coal Mining Laws of Colorado. Of the 50 questions asked in the examination, 10 were preliminary to establish the record and experience of each candidate; 28 were on the state mining law and 12 were technical and practical questions. Examinations for these positions are held by the State Board of Examiners every two years or oftener, if necessary, at places designated by the board. The examination may be written or oral, as prescribed by the board, and candidates are required by law to have had at least five years' experience in coal mines in the United States and to have worked in underground positions in coal mines in Colorado for at least one year immediately prior to the date of examination. Shotfirers, in Colorado, are required to pass an examination given by the chief inspector or the deputy inspector on their visits to the mines.

Ques.—When the mine or any part of it, in the opinion of the foreman, becomes dangerous through lack of ventilation, what are the requirements of the law?

Ans.—In such case the mine foreman is required (Sec. 51) to notify the superintendent and deputy inspector, in writing, stating that the ventilation of the working faces, in rooms or entries or other portions of the mine, is insufficient for the health and safety of the men working therein. On finding this to be the case, the inspector shall direct the owner of the mine to increase the quantity of air in circulation by enlarging the airways or repairing the stoppings or overcasts, or by making a second opening, should this prove to be necessary.

Ques.—What is required on haulage roads where manways are not provided?

Ans.—The law requires (Sec. 55) that shelter holes shall be provided on all mechanical-haulage roads, unless separate manways are available. These shelter holes must be cut into the rib not less than 4 ft. deep, wide and high, on a level with the road, at intervals not more than 50 ft. apart, and kept whitewashed and clear of all obstructions. This requirement does not apply to entries from which rooms are turned at regular intervals not exceeding 50 ft., provided the entrance to each room is kept clear of obstruction, for a distance of 5 feet.

The same requirements are made in respect to all animal-haulage roads where no manways are available or where there is not a clear space of at least 3 ft. between the rail and side of the entry, except where roomnecks, at intervals not exceeding 75 ft., are available as refuge holes. All shelter holes shall be made on the same side of the entry when this is practicable.

Ques.—What are the requirements as to size of entries after the passage of the act?

Ans.—All such entries (Sec. 56) shall be kept clear of obstructions and have a clear space of 2½ ft., between the side of the car and the rib, on one side of the entry, if practicable in the judgment of the inspector.

Ques.—What should be the first points to be looked after by a mine boss on entering a mine in the morning?

Ans.—The mine foreman's first duty on entering the mine is to examine the reports of his firebosses, in order to determine what dangers exist, if any, in any portion of the mine, and to ascertain what places are unsafe for work. This will also inform him of the work that is most important to be done and enable him to distribute the men where they are most needed. Having this information, his next duty is to start the men to work in their proper places, and to see that the bottom men and drivers have all reported for work or that their places are filled, if absent. It is his duty to see that the work is properly started, so that the hoisting of coal will begin without delay.

Coal and Coke News

For the Busy Reader

The Public Utilities Commission of Ohio has authorized roads in that state to advance all freight rates 15 per cent., except on coal, coke and iron, for one year, effective Nov. 20.

State Fuel Administrators have been instructed by the Fuel Administration that they have complete authority in their respective states to enforce the proper distribution of the coal supply at proper prices.

Coke prices for the entire country were fixed by the Fuel Administration in a ruling confirming the price of \$6 a ton set by the War Industries Board for Connellsville coke in an agreement with steel producers.

Where coal shipments can be handled by water, it is probable that the Fuel Administration will insist that they be handled in that manner. This step is under consideration as one of the means of releasing much-needed cars.

Another 24-hour interruption of the priority order affecting shipments of coal to the Northwest has been allowed by the Fuel Administration. On Nov. 19 all mines will be permitted to fill emergency orders for cities in Ohio and Michigan.

The mining industry is doing its bit in the coal mines, and blame cannot justly be placed upon the mine workers for the existing coal shortage. Full responsibility for the coal crisis rests squarely upon those having charge of railroad car distribution.

By ordering all transshippers of coal to make shipments through the Tidewater Coal Exchange, the Fuel Administration expects to increase the national output 10,000,000 tons annually through the release of cars that can be returned immediately to the mines.

Arrangements were made recently by the Fuel Administration to insure an adequate supply of bituminous and anthracite coal for Delaware, so that the public utility plants which are supplying fuel to the numerous munitions plants in that vicinity may not be compelled to shut down.

Plans for using all available waste wood as fuel are being considered by the Fuel Administration. Fuel administrators in several states have already taken a step in this direction by appealing to farmers to cut timber in clearing their farms into cordwood rather than burning it in the field.

In order to provide a sufficient supply of byproduct coal for steel plants in the localities east of Steubenville, Ohio, the Lake priority order was cancelled so far as it applies to coal shipments over the Cleveland, Cincinnati, Chicago & St. Louis R.R.'s main line and branches east of Steubenville.

The task of cooperating with the railroads to provide sufficient cars for the loading of 500,000,000 tons of bituminous coal annually has been delegated by the National Coal Association to John Callahan, formerly inspector of freight transportation for the Pennsylvania Lines West of Pittsburgh, whose appointment as traffic manager of the association was announced recently.

Car shortage in the Pittsburgh coal fields reduced output 39,600 tons on Nov. 10, according to information received by the National Coal Association. Two associations in Illinois reported that car shortage reduced their output 9000 tons. In the Pittsburgh district 18 large mines, with an output of 20,700 tons did not turn a wheel because of lack of cars, and 39 mines, with 50,000 tons daily capacity, worked only part time.

Prices of byproduct coke are to be based upon the established price in the nearest competing beehive district. To this price will be added the freight rate from that beehive district to the point of manufacture. For instance byproduct coke manufactured at Chicago can be sold at \$8.65 a ton. This is based on the price of coke at Connellsville, the nearest competing district, to which is added the \$2.65 freight charge from that district to Chicago.

"Wholesale" and "municipal" robberies were the words used by Dr. Garfield in discussing the stopping of trains and the removal of coal by the populace in Ohio towns. The action of the Ohioans in yielding to the temptation of keeping a little of the coal that goes rattling through their towns day and night is condemned vigorously at the Fuel Administration, where the seriousness of interfering in any way with distribution plans are pointed out.

Enough coal to keep 50,000 people warm all winter will be saved, Dr. Garfield figures, as a result of his order limiting the use of electric signs. By allowing the use of these signs only between 7:45 and 11 p.m., he expects 125,000 tons of coal will be saved. It is regarded as not improbable that an order will be issued later prohibiting the use of electric signs. The curtailment probably was not made complete so as to allow the interests affected an opportunity to adjust their affairs.

Senator George H. Ellis, of Newton, member of the sub-committee on fuel of the Massachusetts public safety committee, says that the shortage of bituminous coal in New England on Jan. 1, 1918, will be 6,603,017 tons, and that the shortage will have to be met by importation to the port of Boston of 6,000,000 tons of anthracite. Receipts of anthracite have advanced 10 per cent. over last year, but this increase has been consumed by industries which had to use hard coal in place of their usual receipts of bituminous.

PENNSYLVANIA

Anthracite

Wilkes-Barre—Attorney A. C. Campbell has been appointed fuel administrator for Luzerne County. This territory, owing to its unique position in the hard coal region, is practically the keystone of the nation's anthracite supply.

Shamokin—The Susequehanna Coal Co. has started enforcing at its Green Ridge Holdings a recently made ruling prohibiting the selling of liquor on company property. About twenty special officers were placed on duty by the company, and drivers of beer wagons from Mount Carmel and Exchange were arrested as they made sales of beer to houses on the coal company's property.

Larksville—Special officers of the Hudson Coal Co. have made several arrests on the charges of breaking and larceny, the culprits having forced an entrance into small houses at the company's collieries and carried off lead and brass.

Swoyersville—After a trial extending through three weeks, a jury returned a verdict for the defendant in the suit of the Forty Fort Land Co. against the Forty Fort Coal Co. The plaintiff sued for damages to land in the borough, alleging that water and culm from a colliery of the defendant injured the value of the land.

Minersville—John Griffiths, a fireboss at the Pine Hill colliery, was caught between a loaded mine wagon and the timber and so badly injured that he passed away in the Pottsville Hospital on Thursday of last week. Two miners were killed at this colliery by a fall of roof, making a total of three fatalities in a little over a week.

Hazleton—The Jeanesville Iron Works will hire 10,000 men from a radius of 30 miles outside the city, and this body of men will come in a large percentage from the already depleted ranks of the mine operators.

Reading—There is a serious shortage of pea coal in Reading, and to a lesser extent, of other sizes of anthracite for cellar furnaces. Dealers say that the railway companies may be shipping many cars or several trains here, at intervals, but that

much of it is being rushed to other points, judging by the small quantities given to retailers in Reading.

Mauch Chunk—H. A. Butler and N. D. Cortright have leased the old De Remer anthracite tract on Mount Pisgah, between Mauch Chunk and Hazleton. The mine was abandoned many years ago but still contains a good vein of fuel.

Hazleton—The Lehigh Valley Coal Company will install two more silt and soft coal mixing plants at its shaft colliery here, for the production of a combination product that is used as fuel on Lehigh Valley R.R. engines. This preparation is the invention of M. Oschita, a Japanese chemist in the employ of the coal company, and will result in the saving of thousands of dollars.

Bituminous

Smithfield—Coal operators in the Point Marion district have asked for improvement on the state highway leading to this town, as the road has become so badly cut up that it is becoming impassable for teams hauling coal from the "team track" mines, which are facing a shutdown.

Somerset—Lawrence R. Finzel, 45 years old, of Hooversville, near here, is believed to have earned the highest wage of any coal miner in the history of the industry in Pennsylvania. Finzel, it was announced here, received \$347.92 last month. With a 100 per cent. car supply, it is said, he could have earned more.

Blossburg—Mining corporations in Tioga County have received notices to name a list of concerns to which they are furnishing coal. This information is requested by the Government as the forerunner of an order, it is said, which will direct that "luxury industries" are to be cut off from coal supply so long as present coal shortage lasts.

Pittsburgh—A famine in household coal has been averted in Pittsburgh and the Beaver and Mahoning Valleys through the contribution by coal operators of the Pittsburgh district of about 10,000 tons for distribution to domestic consumers by D. W. Kuhn, chairman of the Federal fuel administration here. This contribution was the means of relieving, temporarily, a situation that had assumed serious aspects.

Electric light and power companies in the Pittsburgh district not engaged in war work may have to surrender their plants and equipment to those who are engaged in work of vital interest in winning the war. A shortage of coal also may be a factor, as the Duquesne Light Co. said that it had not sufficient fuel on hand to operate its plant on Brunots Island.

Cooperating with officials of the West Penn Power Co., many factories, mills and mines, supplied with current by that company, have eliminated a good part of the work formerly done in the day time and shifted it to night time. This is done in order to relieve the demand for current, which at present is so great during the day that more fuel is necessary to supply it.

Altoona—The large auto truck recently purchased by the County Commissioners of Blair County, having filled up all the bins in the various county institutions with coal hauled directly from the mines, is now available for individuals, the commissioners have decided. Thus many residents of Hollidaysburg and nearby towns are securing coal at the mine mouth prices.

WEST VIRGINIA

Wheeling—Domestic consumers, hospitals, schools and churches of the northern Panhandle counties of West Virginia are assured an abundant supply of coal the coming winter through an action recently taken by the Panhandle Coal Operators' Association, which has agreed to furnish a sufficient supply of coal at Government prices.

Charleston—According to a letter received at the Department of Mines recently, the New River Coal Co. turned out 193,000 tons of coal in October without a single fatality. At the Cranberry shaft, 80 per cent. of the mine workers put in full time, and the average of the whole company was 73 per cent.

Fireco—The Leckie Fire Creek Coal Co. has erected a theater for the entertainment of employees of its mines at Fireco and will also build a schoolhouse for the education of the children. A new store building is also in prospect.

Tralee—The Harty Coal Co. is putting up a store and office building at its mine near Tralee. Mining machines and new mine cars have also been installed.

Winding Gulf—The Lillybrook Coal is erecting a store and office building for its mines at Winding Gulf and may build two schoolhouses. The Beckley Smokeless Coal Co. opened its new general office, store and theater building here last week with a party to its employees and their families.

Charleston—A siding is being staked out for the use of the Standard Byproduct Coal Co., which will open a 900-acre tract on the new extension of the Chesapeake & Ohio R.R. on Big Coal River. It is a Charleston company, of which A. E. Moore is president. The territory at that point is entirely new, the first opening being made in the last year. Purchases there indicate that it will be a very prominent field in the future.

The Orange Gas Coal Co., directed by Charleston capital and having as president W. C. Sharp, has opened up a new mine on an 800-acre tract on the new extension of the Chesapeake & Ohio on Big Coal River. The siding is being staked out in preparation for active development on a large scale.

Hoult—Owing to the difficulty caused by two companies loading coal over the same tippie, the Monongahela Powder Co., whose mine at Rivesville has been loading coal over the tippie of the Chesapeake Coal Co., has begun the opening of a shaft at the upper end of the Powder company's siding at Rita, a half mile nearer Hoult than the old opening. Coal will be loaded on the Powder company's siding.

Clarksburg—Two miners at the Burrows coal mine of Norwood, a suburb, received \$50.60 for a single day's work recently—a new high-water mark in coal miners' wages. It was luck, however, as the coal fell in and all the men did was to shovel it into cars. They loaded 44 cars, receiving \$1.15 a car.

Burning Springs—The Burning Springs Coal Co. shipped its first coal last week. The mine is situated at Burning Springs on the Kanawha & Michigan R.R. and is under the direction of Walter G. Crichton, vice president and general manager. The siding was laid after some delay, but everything is fixed now for steady production.

Wyatt—The Consolidation Coal Co. has commenced shipping from its new mine at Wyatt in Marion County and is preparing to develop a large tract of Sewickley coal recently optioned along Binghamon Creek in the same county. The Marion Gas Co., headquarters at Binghamon, will soon start mining operations on the Wyatt branch of the Western Maryland R.R. in that vicinity.

MARYLAND

Baltimore—The early part of this week about 35,000 tons of anthracite were waiting on tracks at East Philadelphia for transportation to this city, which was in the grip of a serious coal famine. Railroad officials admitted that the coal was on the tracks, but stated they could not handle it owing to the car shortage.

ALABAMA

Birmingham—Reports have reached here that Waddill Catchings, president of the Sloss-Sheffield Steel and Iron Co., is to resign from this office, effective Dec. 31. It is stated at the offices of the Sloss company that they have no information on the reports regarding Mr. Catchings' resignation.

Morgantown—The first coal from the Lockview mine at Lock No. 9, near here, was loaded recently. The company is now prepared to load four or five cars a day and will soon have a capacity of ten cars. The company owns 27 acres of the Pittsburgh vein, 9 ft. thick, near the Pennsylvania line. The coal is conveyed by a tramway across the county road to a chute, where it is dumped and allowed to flow into a large bin some distance away.

ILLINOIS

Springfield—Attorney-General Brundage has sent to Evan John, director of the State Department of Mines, an opinion that the state mining law does not require the shutting down of mines which are unable to obtain certified mine examiners. The law

allows an uncertified person to serve 23 days. Director John asked if uncertified inspectors could be reappointed and continue to serve until certified inspectors could be obtained. The attorney-general, in construing the statute liberally, states that he is doing so in accord with the best public policy in a time of national emergency. "Public policy," he says, "requires, while the present shortage of coal exists, that no technical construction of any part of the law obstruct or hamper the effective running and production of the mines."

The Woodside mine, the topworks of which were destroyed two years ago, has been rebuilt and modernized. It is again in operation and taking its place among the leading mines of this district. Three hundred and sixty-five men are employed. Most of the men have homes in a new addition that has been opened near the mine. The Peabody Coal Corporation owns the mine, but it is being operated by the Springfield District Coal Co., of which W. B. Jess is president.

Alton—G. M. Potter, president of Shurtleff College, H. H. Beardslee and J. A. Giberson, have been appointed as a coal committee for Alton by Fuel Administrator Williams.

Lincoln—The mine of the Lincoln Coal and Mining Co., in which fire was discovered two weeks ago, was unsealed the other day and at first the flames seemed to have been extinguished, but ventilation started them again in the fanhouse. As facilities for fighting them were lacking, it was found necessary to again seal the mine. It will be opened again in a few days, with a line of hose ready, and it is expected that the fire will be extinguished.

Collinsville—The Collinsville Coöperative Society has been incorporated by miners and other union men with a capitalization of \$8000. The incorporators are Bert Gray, Bert Miranda, James Walker, J. M. Varner and Robert Laird.

MISSOURI

Jefferson City—Fuel experts of the railroads operating in Missouri assured Fuel Administrator Crossley at a conference here that the roads are not hoarding coal and that they will coöperate fully in all efforts that are made to supply the needs of consumers. According to their statements, none of the roads have more than enough coal to last them a week, except the Wabash, which has 36,625 tons stored at Moberly. It was explained that this was because there was an embargo against shipping coal from Chicago to the West and the Wabash, deprived of its usual supply from there, was obliged to carry an extra supply in storage in Missouri for emergencies.

The Cole County Grand Jury, in its final report, declared that the practice of officials of the state in purchasing coal for themselves under favorable state contracts, without authority of law, was deserving of the severest condemnation.

Mokane—Mokane was out of coal the other day, but the Missouri, Kansas & Texas R.R. had a large quantity stored there, which the railroad officials refused to either sell or loan. Mayor Hodges called up Fuel Administrator Crossley and was told to forcibly borrow five tons from the railroad company if it could not be otherwise obtained. The coal was "borrowed."

Columbia—Missouri State University is facing a coal famine. All university buildings except the library are being closed at 5 p.m. The auditorium will be opened only on special occasions. After a conference with local coal men, President Hill sent William Whittle, of the Whittle-Hockaday Coal Co., to St. Louis, to try to get some coal.

KANSAS

Lawrence—Citizens recently called a mass meeting to protest against the exorbitant prices of coal and other commodities now being charged in Douglas County. A resolution to establish municipal coal yards where coal would be sold at a reasonable profit was discussed.

Topeka—This city will have a coal mine at its very doors, if J. N. Beal, a farmer living four miles south of Topeka, succeeds in finding some one who is willing to operate a surface coal mine on his farm on shares. Mr. Beal has already opened a "mine" uncovering a vein of coal ranging from 8 to 22 in. in thickness, and extending, he estimates, over an area of several acres. The coal lies under 8 ft. of dirt.

ARKANSAS

Fort Smith—Losses of the Bache-Denman Coal Syndicate as a result of the destruction of their property in the Hartford

Valley in July, 1914, and subsequent cancellation by Federal Judge Youmans in this city of their leases in that vicinity, were estimated at approximately \$750,000 by Heber Denman, superintendent of the company and one of the owners, testifying as an expert in the \$2,222,000 damage suit of the syndicate against the United Mine Workers in Federal court here today. Judgment is sought for triple damages under the Sherman antitrust act.

Foreign News

London, England—The Coal miners of South Wales, a district that has frequently threatened trouble, have voted with an overwhelming majority to keep to their utmost to continue the war until victory is won.

Personals

Henry S. Mosser, Sr., of Newberry, Penn., has been appointed fuel administrator for Lycoming County.

James B. Neale, an operator in Schuylkill County, Pennsylvania, has been appointed advisor to Dr. Garfield on matters pertaining to the anthracite industry.

Cyrus D. Foss, of Philadelphia, Penn., secretary of the Civil Service Reform Association of Philadelphia, has been placed in charge of the personnel department of the Fuel Administration.

L. A. Hood, of California, Penn., has resigned his position as Division Engineer with the Pittsburgh Coal Co., effective Nov. 15, to accept a position as superintendent of the Harmon Creek Coal Co., at Burgettstown, Penn.

E. M. Chance, consulting mining engineer and chemist, of Wilkes-Barre, Penn., has been commissioned a Captain of Ordnance, Washington, D. C. Mr. Chance was at one time chief chemist of the Philadelphia & Reading Coal and Iron Co.

J. Philip Reifkin, of the Bureau of Mines staff, has resigned to accept a position with the Dupont Powder Co. For the past two months Mr. Reifkin has been assigned to the Fuel Administration, where he served as assistant to L. A. Snead.

Charles Rougeau, of Dallas, Tex., an expert in the retail coal business, has been assigned as assistant to Wiley Blair, Federal fuel administrator for Texas. Mr. Rougeau will work as field inspector under Mr. Blair, covering the entire state.

George C. Foedisch, connected with the Whitney & Kammerer Coal Co., Stephen Girard Building, Philadelphia, Penn., is giving four days of each week to assisting the fuel administration in Washington, D. C., at the request of the administration.

Captain Baird Halberstadt, of Pottsville, Penn., has been named by the Hon. William Potter, Federal Fuel Administrator of Pennsylvania, as chairman of the Coal Committee of Schuylkill County. Mr. Halberstadt will divide the county into districts and appoint as a member of the committee one man from each district.

Harry Flood Byrd, of Winchester, Virginia, has been appointed fuel administrator for that state. Mr. Byrd is a State Senator and was recommended by Gov. Henry C. Stuart, of Virginia, and the State Council of National Defense. He is managing editor of the Winchester "Star," president of the Winchester Cold Storage Co. and president of the Valley Turnpike Company.

Obituary

George Conrad Goetting, of the Peabody Coal Co., St. Louis, Mo., died Nov. 8, at the home of his son-in-law, E. G. Ridgway, president of the St. Louis Coal Club, 1325 Temple Place. Mr. Goetting was formerly connected with the coal firm of George Pope & Co. and had been identified with the coal business for about 10 years. Before that he was a flour-mill builder.

Publications Received

"Transvaal Chamber of Mines—Twenty-seventh Annual Report for the Year 1916." Unillustrated, 440 pp., 7½ x 10 in.

"Operating Details of Gas Producers." By R. H. Fernald. Department of the Interior, Bureau of Mines. Bulletin 109. Unillustrated, 74 pp., 5½ x 9 in.

"Coal-Mine Fatalities in the United States, 1916." Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Unillustrated, 42 pp., 5½ x 9 in.

"Monthly Statement of Coal-Mine Fatalities in the United States, August, 1917." Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Unillustrated, 27 pp., 5½ x 9 in.

"Deterioration in the Heating Value of Coal During Storage." By Horace C. Porter and F. K. Ovitiz. Department of the Interior, Bureau of Mines. Bulletin 136. Illustrated, 38 pp., 5½ x 9 in.

"Elementary First-Aid for the Miner—in Italian and English." By W. A. Lynott and D. Harrington. Department of the Interior, Bureau of Mines. Miners' Circular No. 23. Illustrated, 39 pp., 5½ x 9 in.

"Analysis of Coals Purchased by the Government During the Fiscal Years 1908-1915." By George S. Pope. Department of the Interior, Bureau of Mines. Bulletin 119. Unillustrated, 118 pp., 5½ x 9 in.

"Elementary First-Aid for the Miner—in Polish and English." By W. A. Lynott and Daniel Harrington. Department of the Interior, Bureau of Mines. Miners' Circular No. 23. Illustrated, 37 pp., 5½ x 9 in.

"Coke-Oven Accidents in the United States During the Calendar Year 1916." Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Technical Paper 173. Unillustrated, 22 pp., 5½ x 9 in.

"Extraction of Gasoline from Natural Gas by Absorption Methods." By George A. Burrell, E. M. Beedison and G. G. Oberfell. Department of the Interior, Bureau of Mines. Bulletin 120. Petroleum Technology 23. Illustrated, 71 pp., 5½ x 9 in.

Industrial News

York, Penn.—R. E. Gephart, who is Secretary of the Manufacturers' Association of York, has been appointed chairman of the fuel administration of York County.

New York, N. Y.—The Gauley Coal Mining Co. has opened offices at 25 Church St. for the purpose of conducting a wholesale coal business. The office will be under the personal direction of S. J. Bohannon.

Chattanooga, Tenn.—O. B. Andrews, former president of the Chattanooga baseball club of the Southern League, and head of a local box manufacturing company, has donated 1500 wagon loads of kindling to the poor of Chattanooga. It will be distributed by the Rotary Club.

Pikeville, Ky.—The Big Hollow Coal Co. has been organized here by C. C. Bowles, J. J. Huffman and others with a capital stock of \$10,000. The new company will begin a first-class coal development at Big Hollow. A plant of about six hundred tons daily capacity will be established.

Wilkes-Barre, Penn.—The main office of the Anthracite Bureau of Information is now located in Room 605, 437 Chestnut St., Philadelphia, Penn., instead of 1212 Miners' Bank Building, Wilkes-Barre. The Washington offices of the Bureau until further notice will be located at 242 Woodward Building, that city.

Harrisburg, Penn.—Dr. J. Price Jackson, Commissioner of Labor and Industry, has received his orders to report for duty as an officer in the reserve corps of the United States Engineers. The Governor will name a commissioner to act in his place as he did in the case of Col. J. C. Groome, head of the State Police.

Hazard, Ky.—The Kentucky-Tennessee Coal Co. is a new corporation just organized at Hazard by Tennessee people who will begin a coal development at once in the new Lotts Creek section near Hazard. The company will build a town and employ several hundred men. It will have a daily output of about 1000 tons.

Canton, Ohio.—The Deuber Heights Coal Co. has filed amended articles of incorporation, increasing its capital stock from \$20,000 to \$40,000, for the purpose of purchasing coal lands and opening mines. The company has been in the retail business, and now intends to produce its own coal and engage also in the wholesale trade.

Washington, D. C.—Further utilization of inland and coastwise waterways for the movement of coal in order to relieve the congestion on the railroads is planned by the Fuel Administration. An investigation has developed that a large saving in railroad transportation can be effected with the terminal facilities and water transportation equipment now available.

Pittsburgh, Penn.—Industries in the Pittsburgh district not engaged in the manufacture of munitions and war supplies may have to surrender their electric power to industries that are, according to a statement by M. S. Sloan, of New York, a member of the War Shipment Priority Board, who was in Pittsburgh recently to investigate a shortage of electric power.

Erie, Penn.—Lake navigation will close Nov. 15, and this means the end of the priority order which has diverted much fuel to the Northwest. Whether this will help the East remains to be seen. Visitors in the coal trade report that Middle Western states like Nebraska and Kansas, which are not supplied from Lake points, are actually bare of coal and are in urgent need of supplies.

Pittsburgh, Penn.—The Safety First Supply Co. has found it necessary to open a branch office in the Bulletin Building, in Philadelphia. The office will be under the supervision of C. A. Kingsbury, vice president of the Wheeler-Holcomb Co., manufacturers of asbestos protection materials. This branch office will take care of all the New England, Atlantic Coast and Southern Atlantic States.

Streator, Ill.—The United States Coal and Coke Corporation, which recently purchased from Charles Gibson, formerly of Streator, the Rutland third vein mine and residence properties, is now in possession. C. W. Cummings, of Chicago, is president of the corporation. John McGregor, of Chicago, will be manager of the Rutland properties. The new company expects to spend \$50,000 in new equipment.

Washington, D. C.—Traffic congestion on roads supplying coal to plants turning out munitions and other war supplies was the subject of conferences recently between officials of the fuel administration and the railway war board. Immediate action is necessary, officials believe, to relieve the present transportation difficulties. Officials have taken steps to increase the car supply at the mines and at some ports arrangements have been perfected for quicker unloading of cars.

Cleveland, Ohio.—The Federal grand jury has returned indictments against Mayor Carmichael, of Willoughby. Prosecuting Attorney George C. Von Beseler and Deputy Marshals James Barnes and Grant Lamos for impeding interstate commerce and for conspiracy to commit such acts. All are charged with seizing coal belonging to the New York Central R.R. on Nov. 1 and 2. If they are convicted, they would receive penalties of \$10,000 fine or two years' imprisonment, or both.

St. Louis, Mo.—An appropriation of \$25,000 for the establishment of coal-distributing stations in the city of St. Louis was voted by the Board of Aldermen. The various stations will be operated under the direction of Director of Public Welfare John Schmoll. There will be ten stations in congested centers, at which coal will be retailed at from 12 to 14c a bushel, depending upon the price the city must pay for its coal on the open market. The coal will be sold at cost.

Philadelphia, Penn.—The Philadelphia Coal Club held its annual autumn dinner at the Hotel Adelphi, Philadelphia, Penn., on November 15. Among the speakers were Francis A. Lewis, chairman of the Fuel Administration Board for the County of Philadelphia; Edward W. Parker, of the Bureau of Anthracite Statistics, who has been in charge of anthracite distribution at Washington, and Wellington M. Bertolo, secretary of the Pennsylvania Retail Coal Merchants' Association.

St. Louis, Mo.—Newspaper reporters who canvassed 157 homes in scattered localities found that nearly 50 per cent. of the families have less than a month's supply of coal. Tabulation of the results of the canvass showed that 8 homes were absolutely without coal and did not know when their orders would be filled, 15 had less than two weeks' supply, 51 had a supply sufficient for two weeks or a month and 83 had a full supply. All who had ordered their supply prior to the middle of August had obtained all that they ordered.

New York, N. Y.—In a statement issued on Monday of this week, State Fuel Administrator Wiggin said that from such investigation as his office had been able to make it appears the supply of coal in the hands of the public is almost as great as

the supply on hand at this time last year. The supply in the hands of the dealers is less than usual, and this shortage will probably continue until Dec. 1. Consumers should therefore, he said, confine their demands to present needs, and these present needs will undoubtedly be met.

Toledo, Ohio.—Loadings at the docks of the Hocking Valley and the Toledo & Ohio Central railroads for the week ending Nov. 9 were fairly large, indicating a heavy Lake movement. The records show that the Hocking Valley docks loaded 125,000 tons, as compared with 124,000 tons the previous week. The total handled by these docks since the opening of navigation is 4,250,721 tons. The Toledo & Ohio Central docks during the same week loaded 61,000 tons, as compared with 73,000 tons the previous week. The total loaded by these docks for the season is 1,074,522 tons.

St. Louis, Mo.—At a conference between State Fuel Director Wallace Crossley, of Missouri, and the coal men of St. Louis, on the tenth, the director advised the St. Louis retail coal men to organize so that they could cooperate. The coal dealers have been almost afraid to do this for fear of prosecution under the drastic anti-trust laws of the state. The St. Louis Fuel Committee will have members from the retail, jobbing and operating ends of the trade to cooperate with them and to present the troubles of the different branches. E. J. Wallace was appointed fuel advisor to the committee.

Columbus, Ohio.—The numerous seizures of coal by city and town authorities recently have turned the attention of the state fuel administrator's office to the work of inducing Ohio people to make sacrifices, if necessary, in order to permit Federal plans for an equitable distribution of coal to proceed. It is pointed out that the shortage of coal is a national, and not a local, problem, and that the whole country must work together on this problem, as it is doing in other respects. The example of Bellefontaine, Ohio, where extensive religious revivals have been given up in order to save coal, is cited as worth following.

Cincinnati, Ohio.—At meetings of the Hamilton County Fuel Administration Committee with Cincinnati retail dealers, for the purpose of discussing coal prices in this vicinity, gross margins to be allowed to dealers on coal arriving in this market were arrived at, as follows: For domestic coal, per ton, \$2; for industrial coal, per ton, \$1.50; for deliveries from hopper, \$1. To peddlers, a price of 35c a bushel was allowed. As prices at the mines have been fixed by the Government, and freight rates are also fixed, these figures, based on the Government allowance of 30 per cent. plus former margins of profit, are expected to prove satisfactory. They will make little change in current prices in Cincinnati, however.

Louisville, Ky.—Wiley B. Bryan, fuel administrator of Kentucky, has appointed an advisory board consisting of the following prominent Kentuckians: E. F. Vaughn, attorney Louisville; Earl S. Gwin, president of the American-Southern National Bank, Louisville; A. D. Allen, vice president of the Mengel Box Co., Louisville; R. N. Hudson, president of the Louisville, Henderson & St. Louis R.R., Louisville; R. W. Covington, banker, Bowling Green; S. H. Halley, tobacco dealer, Lexington; L. R. Putman, Ashland Steel Co., Ashland; Edward T. Franks, president United States National Bank, Owensboro, Ky. Mr. Bryan has opened an office in the Inter-Southern Building and is completing his organization as rapidly as possible. He has fixed prices on coal in Whitley, Knox, Clay and Bell Counties, Kentucky; mined from the Blue Gem seam at \$4 for mine-run; \$4.25 for selected sizes and \$2.75 for screenings. This was his first executive order.

Louisville, Ky.—Before Examiner Wilber LaRoe, of the Interstate Commerce Commission, a hearing has been given here on the application of the Ohio Valley Coal Operators' Association for equitable through rates from western Kentucky points to the Northern, Western and Southwestern markets. The petition of the Kentucky operators' organization named about 400 railroads, connecting with the Louisville & Nashville and the Illinois Central, as defendants, and testimony of the complainants contended that the Kentucky operators have suffered and are suffering because of the disparity of rates, when compared with the southern Illinois field. Represented at the hearing are the Illinois Coal Traffic Bureau, the Illinois Railroad Commission, besides the railroads named. Interested attendants on the hearing are representatives of the public utility plants in the central states, who, at this time are especially anxious to obtain fuel to keep their plants operating.

Market Department

GENERAL REVIEW

The question of an adequate coal supply today hinges on transportation. Supplies are everywhere short; so are cars and bottoms. Mild weather helps the situation.

Anthracite—The production of anthracite goes steadily forward, but here as elsewhere, are heard complaints of short car supplies and inadequate water-transportation facilities. Reports come from various points of coal "hoarding" by individual consumers. It is quite probable that the so-called "hoards" in many coal cellars are not evidences of selfishness on the part of the owners, but rather of forehandedness. Slight modifications in the rulings of the fuel administration throughout New England have resulted in somewhat of an improvement in the conditions in that territory. It is believed also that the close of the Lake navigation season and increased shipments all rail to New England will relieve the situation to a considerable degree. A modification of the priority order is promised for New York and vicinity, and it is thought that this will help matters decidedly. It is the intention that coal reaching the city by this means shall be distributed to the smallest of dealers, thus benefiting the largest number of people. There is no appreciable increase in the supply of anthracite in the yards of retailers. Embargoes upon various roads are affecting the supply of coal to Philadelphia, Baltimore and other points. Movement to the Northwest is not quite as brisk as it has been in the past.

Bituminous—Mild weather throughout the Northern Central portion of the country has done much in the past week to alleviate any actual suffering which may have existed. Many manufacturing plants, particularly in northern Ohio, have been forced to shut down temporarily, and the shortage has also affected some of the steel mills in that state. Those factories which are directly engaged in Government work have, in many instances, been able to secure priority shipment, which placed them on Easy Street, as compared with other factories not working upon this type of output. It is rumored also that rulings will be forthcoming soon as to what are essential and non-essential industries. Essential industries in that case will, of course, be given priority. In a broad sense the fuel problem of this country is now not one of production, but rather of transportation. From all regions come reports of inadequate car supplies and short-time working at the mines. The railroads have so long been a target for repressive Governmental regulation that under the stress of present emergencies they are short of both cars and motive power, with the obvious result that even when coal could be produced, provided the present labor supply was inclined to work continuously, it cannot be moved. As it is, many operators are working their mines only four to five days per week.

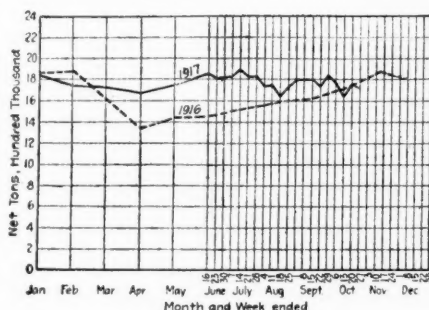
Lake Trade—The movement of coal over the Great Lakes to the Northwest is decreasing. This decrease will probably continue until the close of navigation, four or five weeks hence.

A Year Ago—Anthracite market is in better control, but technical situation still serious. Bituminous slightly easier, but very uncertain and subject to wide fluctuations. More spot coal available in Lake district. Eastern coal practically withdrawn from the Middlewestern market.

COAL PRODUCTION

Bituminous production last week is estimated at 10,494,720 net tons, an average of 1,749,120 tons per working day. Although this was nearly as great as that of the preceding week (1,781,385 tons), it will be seen from the curve that the current production is still below that for the corresponding week of 1916. Unless a marked speeding up of production occurs, the output during the remaining weeks of 1917 is likely to diminish rather than increase the lead established by the 1917 output over that of 1916.

The production of beehive coke during the week is estimated at 574,059 net tons, an average per working day of 95,676 tons. Anthracite shipments fell off 25 per cent., largely on account of the general observance of All Souls' Day as a holiday in the anthracite district.



CARLOADS OF COAL AND COKE
ORIGINATING ON PRINCIPAL
COAL CARRYING ROADS
WEEK ENDED:

District	Oct. 13	Oct. 20	Oct. 27	Nov. 3
Bituminous shipments, 114 roads	118,863	175,246	189,589*	187,504†
Anthracite shipments, 9 roads	42,824	42,590	42,338	32,510†
Beehive coke shipments, 4 roads	14,111	12,946	12,900*	11,785†

* Revised from last report. † Subject to revision.

BUSINESS OPINIONS

The Iron Age—The adjustment of the steel trade to the new regime in prices and to an increasing diversion of mill products from accustomed channels of consumption is proceeding with less friction than had been expected. The difficulties of the mills growing out of the lack of co-ordination at Washington are still painfully apparent and in the past week the industry in the Central West, particularly at Youngstown, has lost pig-iron and steel output from coal and coke shortage. Car troubles have also increased and the outlook for winter operations, both as to cars, fuel and labor is not encouraging.

Bradstreets—Most trade reports indicate that a large volume of business is passing, while at the same time industry is active and collections are prompt, but, withal, sentiment is harried by adverse developments overseas, by drastic liquidation in securities and by the fact that various propaganda to restrict consumption of foodstuffs, as well as buying of nonessentials, unfavorably affect distribution by retail dealers.

Dry Goods Economist—The reduction in the cost of food supplies which promises to result from greater economies on the part of the 7,000,000 who have already signed "Hoover pledges," coupled with the "regulation" of over 20 of the leading food items, are favorable to increased consumption of dry goods.

Marshall Field & Co.—Current wholesale shipments of dry goods for the week are well ahead of the heavy volume of the corresponding week last year. Road sales for both immediate and future delivery are in excess of the same period of 1916. The number of customers in the market during the week has been much larger than in the same week a year ago. Collections are running very strong.

Atlantic Seaboard

BOSTON

Slight gain in situation through modification in rulings by Fuel Administration with respect to rehandling plants. Progress toward new bunker prices and additional rail shipments to New England. Withdrawal of "Rule 11" rumored, but tonnage likely to be affected is not large. Municipal and public service buyers anxious over lack of free coal. Anthracite receipts discouraging.

Bituminous—The significance of recent rulings at Washington is gradually being made plain to the trade in this territory. Interests here owning expensive rehandling plants, with quantities of coal due them on contract and steamers under charter, got apprehensive lest they would not be allowed to sell their free coal to make room

for cargoes yet to arrive. They had difficulty over the published rules and were unable to get classified; whether "jobbers" or what-not they could not ascertain. Now it appears they are retailers, inasmuch as they physically handle the coal; and as retailers they are bound by the prescribed limits applied to such dealers. On filing the required documents with state fuel authorities they are permitted to make prices f.o.b. cars on the same basis as delivery by team. The situation is, therefore, that much clearer, and spot coal is again available at ports like Providence, Boston and Portland. This will measurably relieve cases of distress, at least among the smaller consumers.

The City of Boston and the Boston Elevated Railway, however, find it more difficult. Because of the urgent needs of the city several conferences have been held with the result that each of a number of dealers, including rehandlers for shipment inland, have agreed to cooperate in furnishing the harbor institutions, etc., with a month's supply at a time. Large public-service companies, however, arranged for steamer delivery based upon specified dispatch and a given number of trips, and now through sundry delays and complications their receipts have been materially reduced. Unless the shortage can be made up from offerings of free coal, there are certain to be curtailments in service. Companies furnishing light in the vicinity of Boston are restricting the hours for illuminated signs.

Pocahontas and New River show little change at Hampton Roads, although the Fuel Administration's order of Nov. 6 requiring every shipper of bituminous over the piers to consign output to the Tidewater Coal Exchange is relied upon to speed up loading. The order admits of only one construction and it is doubtless a wise move to have the pooling plan really tried on a comprehensive scale. Several of the larger agencies withheld acceptance while participation was optional, but hereafter they cannot be blamed for any failure of the remedy the Government offers.

The price basis, f.o.b. the Virginia terminals, is still a matter of conference at Washington. Operators are insisting that the present authorized basis is on too low a level to insure the steady output so greatly needed. On the point of bunker prices alone they urge that they are held down to an unreasonably low figure, in view of all the extra costs that are levied upon the producer. War tax and all, the present prescribed price figures about \$3.80 f.o.b. Norfolk, while the season's contract price is \$4.85. They call attention to the 30s. (about \$7.30) basis, f.o.b. Cardiff, authorized by the British government, and declare the discrepancy too great. If relief is granted on bunker prices, it is expected that a general revision of f.o.b. prices would soon follow.

The trade here is also hopeful that a priority order will soon be issued in favor of New England, if only for a day at a time. Much coal is due consumers here on contract, and with any spot market closed to the operators it is doubtless true that deliveries would flow here in sufficient volume to help materially. If such a gate could be opened, a host of buyers in this territory would feel much easier over the outlook.

The reported abrogation of "Rule 11," which would open the way for "jobbers" to sell at an advance of 15c. per net ton coal purchased in good faith before the President's order of Aug. 21, is not considered as of much effect upon conditions in New England. The market in August seemed to many brokers so precarious as to price that the volume of coal actually negotiated for but not sold could not have been large. The disposition of most factors was to sell coal as soon as bought, if not to make sales in advance of purchases. The modification, if confirmed, however, would be significant as showing a less rigid attitude on the part of the fuel authority, and as such would be welcomed.

There is every disposition on the part of coal interests to help the Government in the complex situation, but naturally there is a certain restiveness over the lack of discretionary power vested in any of the local representatives of the Fuel Administration, although manifestly in some cases this is not to be wondered at. Consumers get discouraged in the effort to find out what steps

they must take to comply with the law, and by that time the relief is so meagre that they are disinclined to try again. In practically every case the fuel committees and other subordinate representatives find they must resort to the usual channels in order to get coal forward, and for each requisition on his books the coal merchant now finds he has three or four parties pounding him in addition to the customer. The net result is no different, because each local or wholesale distributor in 99 cases out of 100 is already doing his level best to procure delivery. Certainly there is no revenue for him unless there is coal shipped.

Anthracite—Aside from a small tonnage of "independent" coal both all-rail and by water, there is practically no coal available to make good the shortage dealers have to face from their usual sources of supply. The retail demand is getting sharp again and stocks are lower than ever. One large dealer in a big manufacturing center reports that his daily deliveries averaged 7½ tons for a week, and there are several Boston dealers who have neither egg nor stove on hand. Practically all are driven to rely upon all-rail deliveries to keep them in business, so irregular and uncertain are receipts by water.

"Dead freight" is now being collected on certain of the anthracite barges that come to this market and because shoal water in consignees berths compels their being loaded to less than capacity. At points like Bar Harbor, Maine, Augusta, Maine, and Scituate, Mass., this will add approximately 40c. per gross ton to the cost of water freight, and there is one place where it will add \$1.25 to the cost alongside. This is another item to be included in the reports to local fuel committees.

Appeals to Washington over slow shipment are the order of the day. Consumers who have the slightest excuse, whether through making goods for the Government or in some way supplying some Government need are pestering the Fuel Administration to "do something." This results mostly in unfair comment, due to a general inability to comprehend the simplest details of the coal business.

Boston retail prices remain as follows, no change having been recommended thus far by the local fuel committee: \$8.50 for broken and \$9.50 for egg, stove and chestnut, per ton of 2000 lb., sidewalk delivery. These prices have ruled the same since Nov. 3, 1916. Pea is now \$8.50.

NEW YORK

Relief promised locally, but coal is to be distributed largely among the cellar dealers. Wholesale dealers interested in the negotiations for increased wages for hard-coal workers. No increase in supplies. Bituminous market continues in serious condition with no immediate relief in sight. Coal supply worse than the labor shortage. Buyers from New England flock here.

Anthracite—There is some relief in sight for the local situation now that orders have been given to send more coal to this Tidewater. This was announced by State Fuel Administrator Wiggins on Monday of this week and it was stated that the coal so diverted is to be distributed in such a manner that those consumers who get their supply in small lots from the 10,000 or more cellar dealers will secure the bulk of it.

This statement is the fulfillment of the efforts of the local trade to have more coal sent to this market to relieve a situation which was serious and now that the order has been issued efforts will be made to see that this extra tonnage is distributed where it will do the most good. Householders with bin capacity are in most instances well fortified against the approaching cold weather, but the shortage of coal has gone hard with the flat dweller and those who by reason of having no bins are compelled to buy their fuel by the pail.

Local shippers and wholesale dealers are watching the outcome of the negotiations now going on in Washington between the operators and miners' representatives which may result in an increase in wages to the mine workers. This increase, no matter what it might be, will no doubt be added to the cost of coal and eventually be paid by the consumer.

The domestic sizes continue scarce for the spot buyer. The receipts here are quickly taken care of and little is left to be picked up by the retail dealer to replenish his stock. Wholesale offices are besieged daily by local buyers as well as by many from the New England states. The latter complain bitterly of the lack of supplies but receive little encouragement.

Demand continues heavy and jobbers say the amount of coal obtainable at the loading docks is about as small as at any time this fall. The operators attribute the shortage to the migration of workers to

the munition plants and other industries where the pay is higher, and the lack of transportation facilities. It is estimated that from all causes at least 25,000 men have left the mines and more are going daily. Within the past week many Italians have quit their work and are on their way to join the army in their mother country.

There is not a heavy demand for the steam coals although there is no surplus and prices are a trifle stiffer. Buckwheat No. 1 is in good call and shippers find an easy market for it. The call for rice and barley is not as heavy. Large quantities of "dust" are being sent here for mixing purposes.

Current quotations, per gross ton, f.o.b., Tidewater, at the lower ports are as follows:

	Circular	Individual
Broken	\$5.95	\$6.70
Egg	5.85	6.60
Stove	6.10	6.85
Chestnut	6.20	6.95
Pea	4.70	5.75
Buck	3.95@4.65	5.40@6.00
Rice	3.40@3.60	4.50@4.75
Barley	2.90@3.15	3.50@3.75
Boiler	3.15@3.40	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—The new price of \$2.45 has had no effect on the local market as most of the increase has been devoted to higher wages, but operators here look for a further readjustment shortly. The ruling of the Fuel Administrator regarding contracts was a welcome relief to jobbers. The order suspending the priority order in shipments of coal to the Northwest from midnight on Sunday, Nov. 18, to midnight on Monday, Nov. 19, will not have much effect on this market it is thought as the suspension is for too short a time.

Efforts are being made with the Washington authorities to increase the coal supply which operators say is now more serious than the labor shortage. Some mines were without cars for a couple of days last week while the workers were anxious to go to work. The supply along the Baltimore & Ohio and the Pennsylvania averaged less than 30 per cent., but the mines along the New York Central and the Western Maryland fared better. Unless the mines are given a greater number of cars it is doubtful if the coal output can be increased greatly at least until Lake shipments are discontinued. Even then it is probable that considerable of that tonnage will be taken care of by the various steel mills and other industries inland which are now in need of more coal.

The order of Dr. Garfield making all shippers subject to the rules of the Tidewater Coal Exchange did not have much effect on local conditions as nearly all shippers were already members.

Buyers from New England are flocking here in the hope of picking up stray cargoes but they are invariably meeting with failure. Contract coal is moving in good volume but there is no spot coal to be had. Many plants are said to be in serious shape owing to the scarcity of fuel and Washington is being appealed to for aid.

PHILADELPHIA

Anthracite shipments slow to improve. Pennsylvania R.R. deliveries disappointing. Baltimore & Ohio embargoed. Move to expedite unloading. Shortage of Lehigh coal. Increased gross margin denied. Bituminous shortage proved. No increase in production. Difficulties over new agreement. Brokers recognized. Government calls for heavy tonnage.

Anthracite—Promised increased shipments have not as yet materialized. Particularly disappointing is the situation on the line of the Pennsylvania R.R. When the embargo was removed the dealers thought their immediate wants were about to be relieved, but since then the only coal they have received is that which had been previously consigned to them and was standing at junction points. As the season advances the demand is increasing and now many retailers are actually desperate. Some have had no coal for weeks and many families are having trouble to find a dealer who will accept their orders.

The situation on the Philadelphia & Reading Ry. tracks has failed to improve as expected. While the dealers there have all along been in better condition than those on the Pennsylvania R.R., there has been such a drain on the supplies of the former dealers that many of them have empty yards. The largest operating company seems to be holding up its end, but

cannot be expected to carry the burden alone. The other companies report an unusually small coal supply, occasioned, we believe, by the delay in the return of empties from distant points.

A new embargo was placed this week, on the Baltimore & Ohio via Park Junction. While there are comparatively few dealers on that road in the city, yet on account of routing back cars that had come North with soft coal these dealers have been fairly well supplied for a long time. Indirectly this embargo will help the city trade, for the reason that it shuts off shipments to all Southern points, although it is not thought this will continue for more than a week.

The local dealers this week at a conference with the railroad representatives agreed to make extra efforts to release equipment. It was decided that the yards would receive deliveries from the railroads on Sunday and wherever possible the retailers would also arrange to have the cars released the same day.

There has been a noticeable lack of tonnage received of late from the Lehigh Valley. Normally a fair tonnage comes in via the Philadelphia & Reading Ry., but just now the business is virtually neglected. It is still true that the trade of the independent operators is far better cared for than that entirely dependent on the companies. This is because these producers refuse to accept any business for which they are not the usual source of supply.

The retail trade taken as a whole is much distressed because the recommendation of the local Fuel Administrator asking for an increase in the margin of gross profit has not been allowed by the authorities in Washington. The various committees who had called upon Mr. Lewis, of the local committee, had convinced him that a gross profit of \$2.50 per ton was in no way excessive and he had encouraged them by his recommendation to the national authorities. The representative dealers of the city do not purpose to drop the matter and claim necessity compels them to fight for the increase.

A meeting has been called for this city on Nov. 20 to which all the retail coal men's associations east of the Mississippi River have been asked to send representatives. The object of the meeting is to secure capable representation at Washington for the entire retail coal trade.

In this city it is noticeable that the dealers with the largest yards and tonnage, and consequently the most money invested, are the least satisfied to continue business under present conditions. It is hoped that with greatly increased consignments, which we understand are promised after the middle of this month, much of the dissatisfaction in the trade will disappear.

The bucket trade problem is about to be solved by compelling such dealers to sell by the bushel, using a wooden measure, with the price fixed at 52c. a bushel, with a proportionate rate for a fractional part of a bushel.

Operators continue to be quite apprehensive of the wage problem. It is understood that the miners are still insisting on an increase of from 20 to 30 per cent.

There is little to be said of the comparative demand for the different sizes. There is no dealer who would not gladly accept anything offered him. Stove is probably the shortest, and egg will soon rival it. These two sizes are also the most called for by the Government for the cantonments. Of chestnut and pea, the latter has the call just now, but as so much of the former has been sold on account of the shortage of the smaller size there is practically no chestnut in stock. The steam sizes remain close to the figures quoted last week. Buckwheat is in quite strong demand at \$4 to \$4.25. Rice is quoted at \$3 to \$3.25, with barley ranging from \$2 to \$2.25. Buckwheat continues to be the most sought for, and while the smaller companies are practically sold up on all sizes, yet some of the larger companies report themselves able to take on some new business on barley and even then qualify this by stating that shipment is a question of receiving cars.

The prices per gross ton f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line Tide		Line Tide
Broken.....	\$4.55 \$5.70	Buck.....	\$2.80 \$3.40
Egg.....	4.45 5.75	Rice.....	2.30 3.30
Stove.....	4.70 6.00	Boiler.....	2.10 3.20
Nut.....	4.80 6.05	Barley.....	1.80 2.05
Pea.....	3.40 4.30		

Bituminous—That an actual shortage of bituminous coal exists here was shown by an exhaustive canvass of the manufacturers made by the Chamber of Commerce. Their report discloses that the normal stock of coal on hand in the city for Oct. 1 should be 187,512 tons, as against 81,651

tons actually on hand. At this rate it is estimated the deficit for the year will amount to 1,241,955 tons.

There has been little, if any, improvement in production and the car supply is still critical. There is no doubt that the transportation companies are making heroic efforts to alleviate the situation and on account of the recent restriction in the loading of open cars it is thought their efforts will soon produce results.

While most of the operators have adopted the plan whereby they are enabled to charge an increase of 45c. on the \$2 Government price, yet this has in no way increased free coal and the market remains devoid of supplies of this kind. While the operators have generally signed the agreement, many of them are experiencing trouble with the miners, who, while anxious for the higher wages, do not want to submit to the penalty clause of the agreement as formulated by the Government.

The statement that the Government may soon find it necessary to requisition 10 per cent. of the output of the mines for emergency use by the Fuel Administration produced no effect in the trade. Every one realizes that the Government must be supplied and should it require the entire output the business would gladly be turned over to it in the endeavor to assist as much as possible. As it is, the Washington authorities have been making particularly heavy calls for tonnage lately. One local concern reports it was recently called upon to deliver 3000 tons in 10 days, yet in the first seven days of that period received but 31 cars for loading.

An interesting occurrence has been the order allowing the brokers to take a commission of 15c. per ton on such coal as they had contracted for with the operators prior to the Government price-fixing order. While this will not have the effect of placing any additional tonnage on the market, the fact seems to be established that the jobbers have won recognition by the Government.

The order modifying the period of time of illumination of electric signs was received with little comment by the coal interests, although it seems to be generally agreed that it is a necessary saving, small as it may be in individual cases.

BALTIMORE

Fuel administrator still unappointed. Rail embargoes hit both hard- and soft-coal situations. War tax and wage increase effects felt here.

Bituminous—While the coal trade here still awaits the appointment of a local fuel administrator and the names of Frederick A. Meyer and Walter B. Brooks are being heard as the most likely choices, the immediate fuel supply situation remains largely unrelieved. Railroad embargoes against certain Pennsylvania coals prevented some movement this way, and general railroad congestion continued a big factor. Coal to arrive at Tide and at all-rail terminals is still being apportioned stingily. So far, however, there have been no lengthy shut-downs because of lack of fuel.

Mine interests that have decided on wage increases in order to take advantage of higher price maximums as allowed by Washington, are sending out notices in connection with raises on existing contracts to take care of this jump. The raise is running generally from 40 to 45c. There has been some question raised as to whether this jump should apply to contracts made previous to the Presidential order of last August, but the tendency is to stick it flatly on all contracts. Middlemen are in turn notifying consumers of the raise, which is provided in contracts here generally to care for any sudden production-price increase. The 3 per cent. transportation tax is also being added to all bills and ultimately comes to the consumer for payment.

Anthracite—For ten days the anthracite trade has faced an embargo on the Pennsylvania and for a week on the Baltimore & Ohio. This was lifted Sunday, but movement continues light. There are probably from 500 to 600 cars of anthracite on sidings between the mines and Washington. It is estimated that more than 200 cars are routed to this city. If it can be gotten through it will bring considerable relief to a tense situation. Coal in many cases is now being delivered in one-ton, or even half-ton lots, to keep fires burning in homes, and local yards are for the most part swept clear of reserve coal. The price schedule has been advanced 10c. a ton over the October selling list, in order to care for the 3 per cent. transportation tax. Prices for hard, white ash now run as follows at retail: Broken, \$9.30; egg, \$9; stove, \$9.25; nut, \$9.40; pea, \$8, and buckwheat, \$6.75. Sunbury egg is bringing \$9.25; stove, \$9.50, and nut, \$9.65. Lykens Valley egg sells for \$9.75 and stove and nut each \$10.

COASTWISE FREIGHTS

Three dollars continues the prevailing rate on the few barges chartered, Hampton Roads to Boston. Inquiry is extremely light, due to detention at the loading piers.

Barge rates from New York to Providence are easy at \$1@1.25, few shippers being in position to accept bottoms. Eastern charters are now very rare.

Lake Markets

PITTSBURGH

Supplies to consumers unsatisfactory. More railroad congestion. Suspensions of Lake priority order.

The coal situation is quite unsatisfactory from the viewpoint of most consumers. Some are not receiving enough to conduct full operations while others manage to get along but are unable to accumulate even the most modest stocks against prospective interruptions to traffic, when bad weather comes. Some of the Youngstown steel mills have been losing production on account of not obtaining sufficient coal. The Brown Bonnell plant, an important division of the Republic Iron & Steel Co., has been idle since the beginning of last week, but it is hoped will resume this week as a result of priority order secured at Washington.

The difficulty seems to be with transportation more than with production and the condition reported a week ago continues, of operators offering to sell coal if the buyer will arrange for the transportation.

As to the removal of the Lake coal priority order with respect to about half the roads involved in Lake coal movement, Nov. 1, no improvement in commercial loadings is noted thus far as a result and it appears now that the priority order was removed simply because the Lake movement was already congested. The Lake coal priority order has been suspended as to the Pan Handle east of Steubenville, Ohio, to permit the shipping of coal to the byproduct plant just east of that town. The order has also been cancelled for all roads, for the 24 hours of next Monday, to help the fuel situation in Ohio and Michigan.

We quote the market at \$2.20@2.35 for slack, \$2.45@2.60 for mine-run and \$2.70@2.85 for screened coal, per net ton at mine, Pittsburgh district, the higher price being for sales made by jobbers.

BUFFALO

Still the complaint that bituminous is giving out. No free coal yet. Trade in the same dissatisfied state. Anthracite movement good, but not so heavy as formerly.

Bituminous—The situation remains unchanged. Jobbers are making all sorts of complaints, claiming mostly that the fuel administration is making things worse by its action. They say that car shortage is what ought to be looked after and that when there are cars enough there will be much more coal. The bituminous trade is mostly marking time, for the supply of free coal is so small that nobody can do business of account unless he has contracts, and in that case the consumer is so eager to get his coal that anything goes.

The coal movement improves slowly, if at all. It is odd that the supply is at least fair in the grain and flour trade while it is short in the coal trade. Millers and grain dealers are loading their cars to the roof and making them carry sometimes 25 per cent. more than their marked capacity, but coal shippers do not seem to be able to do that, for they commonly fill the cars full anyhow.

The effort to keep an eye on the concerns that are running out of coal is being made and certain jobbers are directed to furnish the coal, but they are often obliged to report to the authorities that they are not able to do so. They always forward the correspondence with the mines, so that if the authorities wish to take the matter direct they may do so.

According to the prices established by the fuel administration the Buffalo market rules as follows, f.o.b. cars here, per net ton:

	Slack	Lump
Pittsburgh	\$3.75	\$4.25
Bessemer	3.70	4.20
Allegheny Valley	3.60	4.10

No regulation of cannel or smithing has been made. They sell at from \$4 to \$4.75 at the mines.

CLEVELAND

Poor car supply at mines cuts down production. Lake shipments show big decrease. Several plants forced to shut down for lack of fuel.

The car supply at most of the Ohio mines the past week was the poorest it has been

in many weeks and in consequence the output decreased to a large extent, shipments to Lake falling off about 300,000 tons. The total Lake coal tonnage for the week only amounted to about 700,000 tons, as compared with 1,000,000 tons for other weeks. Shipments to industrial and municipal plants also fell off, on account of the car shortage, and several plants were forced to shut down for the lack of fuel. This situation occurring during mild weather has created an apprehensive feeling as to what will happen when the railroads go up against bad weather conditions later on.

While the Lake priority order will not expire on Nov. 15, having been extended until the weather closes navigation, Federal Fuel Administrator Garfield has issued an order to the effect that all coal loaded at Ohio mines on Nov. 19 shall be shipped to dealers, industrial and municipal plants in Ohio and Michigan. This is expected to relieve the local situation till close of navigation.

Following are the market prices per short ton, f.o.b. Cleveland:

	Three-quarter	Mine-run	Slack
No. 8	\$3.75	\$3.50	\$3.25
Cambridge	3.75	3.50	3.25
Middle District	3.90	3.65	3.40

Jobber's prices are 15c. per ton higher than the above prices.

TOLEDO

Mild weather eases condition of the market. County fuel board is attempting to fix prices; and margin of profit. The number of factories urgently in need of coal is mounting rapidly. Most plans for immediate relief of fuel situation are in a chaotic condition.

The Lucas County Advisory Committee is trying hard to arrive at a fixed price to be charged for domestic and commercial coal. The price-fixing problem is evidently more important than members of the board first thought, as the whole of last week was devoted to this work without arrival at a favorable conclusion. A reasonable margin of profit for retailers appears to be the bone of contention. Meanwhile the shortage of coal is increasing, and what little supplies have been shipped here since the fuel board took up its duties have been rapidly absorbed.

Steam users are becoming more insistent each day. Nov. 19 has been set as the date for the next shipment of Government coal to this city. Apparently this means those suffering from empty bins must wait until that date before they can hope to secure a fresh supply. If this is the case, several factories will be forced to close down, or curtail operations.

The frenzied demand for coal by domestic consumers has abated to some extent, owing to mild weather. Only an occasional car or two of anthracite continues to come into the city, and few small retailers have any coal at all to sell. Retailers are confident, however, that most people have larger supplies of fuel in their cellars than usual this fall.

Lake shipments are going forward as rapidly as vessels can be secured to carry cargoes. All the railroads coming into the city are busy hauling coal to the docks for the Upper Lakes. No ship leaves here without a large cargo of coal, and for the next week, when navigation officially closes, coal men expect to move more coal to the Northwest than during any other week of the shipping season. The large machine shops and mines in the Northwest obviously need have no fear of a coal shortage this winter. Shippers assert sufficient fuel has been dispatched to the Upper Lakes to take care of manufacturers and consumers essential to the successful prosecution of the war for at least a year.

DETROIT

Demand for steam coal continues pressing with little stock arriving. Anthracite supply shows little improvement. Lake shipments diminish.

Bituminous—With consumers making eager efforts to get steam coal, wholesalers and jobbers are meeting with little success in the effort to locate stock with which to supply their needs. Free coal on tracks has been so long missing that jobbers are beginning to wonder if such a source of supply ever existed. They say that about the only coal now reaching Detroit is stock shipped in performance of contracts negotiated previous to the date when the Government price regulations went into effect.

Attempts by jobbers to find coal at the mines have been productive of no satisfactory results. In addition to the general scarcity of the product the transportation situation exerts a depressing influence. Em-

barges on roads moving coal toward Detroit are of such frequent occurrence that there has developed a pessimistic opinion of railroad facilities.

Temperature conditions during the week have been favorable for those householders who are not plentifully supplied with domestic stock. Under direction of the municipal fuel dictator, part of the coal arriving to apply on a contract made by the city is being diverted to be distributed in small lots among domestic users, who have been unable to supply their needs through other channels.

Anthracite—There appears to have been little relaxation of the stress as regards anthracite supply. Incoming shipments are small, jobbers say, and it seems an impossibility to get a larger volume of coal started this way. Coal promised the city by the Federal coal-administration department, according to information here, has been sent to Eastern points instead. Retail prices for the present are \$9.50 per ton for stove and egg size and \$9.75 on chestnut.

Lake Trade—Lack of cars is in part held responsible for diminishing shipments over Lake routes. Diversion of coal loaded on cars for the Lake trade, to other parts of the country, also has been a factor in cutting down cargoes. The movement during the week was light and many of the carriers made the upbound trip without cargo.

COLUMBUS

Warm weather and the fact that some coal has been released for domestic purposes have relieved the stringency to a certain degree. A marked shortage of stocks for both domestic and steam purposes still exists.

The coal trade in Ohio has been progressing about the same as in previous weeks. Domestic users and steam consumers are still clamoring for stocks, which are denied by the Lovett priority order. The situation is not serious at this time, mainly because of warm weather, which does not force domestic consumers into the market. But generally speaking the shortage of fuel stocks is marked and unless relief is afforded, the first cold snap will bring about some suffering.

Retail trade is still attracting the attention of the Federal and state fuel-regulation machinery. Dealers' stocks are rather low and in many localities the policy of delivering only a small amount to each consumer is followed. By this means and because of investigation of many complaints where coal is lacking, the suffering incidental to short fuel stocks is being kept at a minimum. In fact it can be said that there is little likelihood of suffering in Ohio unless transportation facilities fail completely. Retail prices are firm at the levels which have been fixed by the local committee. Pocahontas stocks are scarce and the same is true of some West Virginia splints. Anthracite is also scarce on the local market.

The steam trade is active and a large tonnage is now being diverted for steam purposes from the Lake trade. This is due to the activity of local committees acting in conjunction with the state and Federal fuel authorities. Iron and steel plants, engaged in war work, are being supplied, and the same is true of many lines of manufacturing. Public utilities are supplied for the time being at least. Schools and hospitals are now being taken care of, and the same is true of power concerns.

Production during the past week has been fairly good. Car supply in the Hocking Valley has been better and the same is true of the Pomeroy Bend district. In eastern Ohio, the Cambridge and Crooksville districts, there is still a car shortage. On the whole the output has been about 70 per cent. of normal.

The Government increase of price at the mines in the Jackson, Massillon and the Palmyra fields, which amounts to \$1.40 per ton on all grades, is expected to stimulate production in those districts.

CINCINNATI

Milder weather has prevailed, helping the situation, but demand remains in excess of the supply. Means of taking care of the public are being discussed, including definite retail price-fixing.

Mild weather has prevailed during the past week. This has tended to quiet the frantic demand for coal by domestic consumers, but as fuel has been needed constantly, notwithstanding the moderate weather, there has been continued pressure on the trade for supplies of coal much in excess of the amount available.

The price question has also come more prominently to the front, with the less urgent nature of the demand. So far there has been little discussion of retail prices in connection with the figures issued by the Government. Meetings of coal men and the

authorities during the past week had this question up, and a tentative price for coal, based on figures for several years past, with the Government allowance of an additional profit now, was arrived at, for submission to the state fuel administrator.

If this price is approved, as it is expected it will be, there will be no further room for argument on the question; and as it amounts to a figure in the vicinity of the prices being charged for the various grades of coal in the Cincinnati market, little if any change is expected. The problem with both industrial and domestic consumers will remain to get the coal.

LOUISVILLE

Kentucky coal trade working in harmony with State Fuel Administrator in efforts to untangle situation. Some consumers overdoing the appeal to administrator business. Mild weather; car supply short.

Since the appointment of the state fuel administrator, Kentucky coal operators and dealers have been cooperating with him in an effort to bring about as much regularity in the coal trade as is possible. It has been noted that consumers, posted as to what they can gain by invoking aid of the Fuel Administrator, are demanding more coal than the operators think they are entitled to. Records of purchases in previous years are cited as gages to quantities that should be allowed now.

Generally the operators are giving all possible aid to the fuel administrator and individually have volunteered to respond to any calls for night or Sunday work. The retail dealers of Louisville have sent Julius Bierach, of the St. Bernard Mining Co., to Ohio points, to ascertain and report back on the data used by them in presenting their cases to the Ohio Fuel Administrator and on which are based the retail price schedules. The advance of 45c. has quite generally gone into effect, operators meeting the terms stipulated. There has been no letup in the insistent demand for all kinds of coal and operators continue booking ahead and conditionally.

Mild weather has somewhat relieved the tension in the retail trade which, though on a hand-to-mouth basis, is managing to dole out coal in sufficient amounts to keep householders comfortable. A short car supply is complained of in both eastern and western Kentucky, while there have been embargo restrictions on some shipments to Northern points. Mine workers are responding to calls for getting coal out, at least up to the limit of the car supply.

BIRMINGHAM

Wholesale trade not materially changed. Demand stiff and supply short. Local fuel committee is analyzing the retail situation with a view to regulating distribution and fixing a uniform retail price on domestic coal. Output steady but far below normal capacity.

The local fuel committee of Jefferson County has completed its organization and taken as its first task a thorough investigation of retail conditions. Every retailer has been called upon to furnish an inventory of his stock, detailed information as to deliveries called for in contracts with the mines, and such other data as will enable the committee to get a line on the production and distribution, and lastly for formulating a uniform retail price to the householder, which will take care of the differences in cost of handling by retailers and allow a reasonable margin of profit to each.

Conditions as they relate to the wholesale steam trade are tense—the supply is short and consumers are insistent on having their orders booked and shipments made. Inquiries have been numerous the past week from the Carolinas, and while district mines are unable to meet the needs of legitimate territory, there is a disposition, wherever at all possible, to ship a few cars to remote points where the need is especially acute.

The complaint of the Alabama wagon mines, seeking an increase in price for their product, has been referred to the local fuel committees in the respective counties for such relief as they may deem expedient. A number of prominent operators in the Black Creek and Cahaba field have been in Washington recently to speed up, if possible, a decision from the fuel administrator on their plea for an increase in the mine price in these fields, it being claimed that numbers of mines in that district are unable to operate profitably on the basis of present schedules.

Labor conditions in the district are not altogether satisfactory. Men continue to work irregularly and much tonnage is lost on account of miners laying off after the semi-monthly pay days. Negroes continue to return from northern fields and are readily placed at the mines and industrial plants where most of them formerly worked.

Coke

CONNELLSVILLE

Fuel Administration sets maximum coke prices at \$6 for furnace, \$7 for foundry and \$7.30 for crushed. A second general advance made. Market conditions unsatisfactory.

The Fuel Administration has formally fixed coke prices, and this reaffirms the basis price of \$6 set by the President as announced Sept. 24. There was a quibble raised by a few operators as to the legality, under the Lever Act, of the \$6 price, on the ground that it was arranged by the War Industries Board and not by the Fuel Administration. The Lever Act, however, empowers the President to fix the price and this the President had done, at \$6, after the coke operators had proposed to the War Industries Board a price of \$6.50.

Prices announced by the Fuel Administration are \$6 for furnace coke, \$7 for foundry coke and \$7.30 for crushed, over 1-in., per net ton at ovens east of the Mississippi River, prices elsewhere to bear the same relation to coal prices as obtained in 1912 and 1913 between contract coke and coal prices. The maximum prices are for "coke made in ovens without byproduct recovery," which perhaps is suggestive that other prices may be named for gas house coke and such byproduct coke as is made with byproduct recovery.

The trade had been in doubt as to two things, brokerage and the differential for foundry coke. By the rule brokerage, if paid, is to be paid by the seller, and not, as in the case of coal, by the buyer. The \$1 differential for foundry coke is the one adopted tentatively by a few sellers some time ago.

Last Friday the H. C. Frick Coke Co. announced a general wage advance, effective the next day, Saturday, Nov. 10, which advance will necessarily be followed by the other operators. The advance of Oct. 1 raised the rate for mining and loading room and rib coal, per 100 bu., from \$2 to \$2.16 and the rate for inside laborers from \$3 a day to \$3.25. The present advance raises these rates to \$2.29 and \$4.15, or by 6 per cent. and 28 per cent. respectively.

Operators claim there is not enough labor or sufficient car supply to meet the requirements of the trade, while consumers claim some operators are holding coke back and even quoting higher than the set price and the situation on the whole is unsatisfactory. Several complaints against operators have been made at Washington.

Open market sales are infrequent. We quote the market at \$6 for furnace, \$7 for foundry and \$7.30 for crushed, per net ton at ovens.

Buffalo—The authorized advance of the price of foundry coke to \$7 at the ovens has made no difference with the movement here. No free coke is moving, but the furnaces appear to get a supply on their contracts. No complaint is reported.

Birmingham—The new coke prices announced by the Government were received by local producers with little comment and will not affect the trade in this district for some time yet. It is announced that practically the full output of the ovens in this section has been disposed of through the first quarter of 1918, and consequently spot supply is much restricted, but the new figures, though they represent a drastic reduction, will be observed on such business as can be accepted. It is likely that some adjustment in these prices will be asked by manufacturers later on when a larger tonnage is made available by expiring contracts. No differential is provided in favor of the coke manufactured from the high-grade coals as against the product from the ovens where big seam coal is used. A price of \$6 is named for furnace coke, \$7 for 72-hr. foundry and \$7.30 for crushed coke, all f.o.b. ovens.

Middle Western

GENERAL REVIEW

Illinois fuel administrator and operators through the trade associations are handling all complaints relative to shortages in supplies at various points. Production increasing, but car shortage interfering with running time 15 to 40 per cent.

The Illinois Fuel Administrator, J. E. Williams, and his assistant, Dr. E. C. Howard, are receiving numerous complaints from towns and cities in the State of Illinois relative to shortages existing, some of which have more or less merit, but the majority come from "snow-birds," private individuals and others who are making an

attempt to get into the coal business for the winter season. The operators through the Franklin County Coal Operators' Association, Williamson County Coal Operators' Association, Northern Illinois Coal Trade Bureau, Central Illinois Coal Bureau, and the Coal Trade Bureau of Galesburg, are handling these complaints, making the investigations and where the evidence proves there is a serious shortage, requests are made to the operator to supply emergency coal through the regular channels of distribution.

The curtailment of shipments from the Eastern fields is causing the main burden of demand to fall upon Indiana and Illinois coal shippers. The latter have adopted the policy of only filling those definite orders which they can take care of within one week. Orders in excess of this are placed on the reserve list and are accepted only when there is reason to expect they can be filled.

CHICAGO

Coal prices fixed for Chicago and Cook Counties. Demand for domestic coal increasing. Dealers unable to secure sufficient supplies of eastern bituminous and anthracite.

The Cook County fuel administration committee, with the approval of the State Fuel Administrator, has announced a new scale of prices for retailers affecting both anthracite and bituminous coals—the gist of the order being as follows:

1. A net margin of 25c. per ton on bituminous coal and 35c. per ton on anthracite coal may be added to the fixed mine and transportation costs, and to a fixed 'cost of doing business' charged, the latter named by the coal committee.

2. The 'cost of doing business' charge—yard, delivery, salesmen, etc.—was fixed according to deliveries, whether of small or large size, and on bituminous coal ranges from \$1.45 to \$1.95 per ton. On Pocahontas from \$1.60 to \$1.85 per ton, and on anthracite from \$1.70 to \$1.85 per ton. On grades of coal in half ton or less lots and in bags additional charges are allowed, as well as charges for delivery by carrier into a basement or upper floors.

3. Maximum prices which the retailer may charge a customer are fixed and must be posted in dealers' offices and be readily accessible to coal buyers.

The revised and corrected coal price lists for consumers are as follows:

	A	Grade B	C
Indiana mine-run.....	\$5.35	\$5.45	\$5.60
Indiana prepared sizes.....	5.60	5.70	5.85
Indiana screenings.....	5.10	5.20	5.35
Central Illinois mine-run.....	5.30	5.40	5.55
Central Illinois prepared sizes.....	5.80	5.90	6.05
Central Illinois screenings.....	5.05	5.15	5.30
Southern Illinois mine-run.....	5.55	5.65	5.80
Southern Illinois prepared sizes.....	6.05	6.15	6.30
Southern Illinois screenings.....	5.30	5.40	5.55
Pocahontas.....	7.35	7.45	7.55

	Large Egg	Egg	Stove	Nut	Pea
Anthracite.....	\$9.70	\$9.60	\$9.85	\$9.95	\$8.45

"A" refers to customers purchasing 50 tons or more. "B" refers to 30 tons and less. "C" for 5 tons and less.

Allowance for delivery of half ton lots, 20c. Anthracite in bags, 60c.

The prices shown above are slightly in excess of former prices, except on Pocahontas and anthracite where there has been a slight decline.

	Williamson and Franklin	Saline and Harrisburg	Fulton and Peoria	Springfield	Carterville	Grundy, La-Salle, Bureau and Will
Steam lump.....	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80	\$3.10@3.25
Domestic lump.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Egg or furnace.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Small egg or nut.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Stove.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Chestnut.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Pea.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Washed egg.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Washed stove.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Washed nut.....	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	2.65@2.80	3.10@3.25
Mine-run.....	2.40@2.55	2.40@2.55	2.40@2.55	2.40@2.55	2.40@2.55	2.85@3.00
Screenings.....	2.15@2.30	2.15@2.30	2.15@2.30	2.15@2.30	2.15@2.30	2.60@2.75
Washed slack.....	2.15@2.30	2.15@2.30	2.15@2.30	2.15@2.30	2.15@2.30	2.60@2.75

	Clinton and Sullivan	Knox and Greene	Eastern Kentucky	Pocahontas and W. Va.	Penna.	Hocking	West Va. Splint
Dom. lump.....	\$2.65@2.80	\$2.65@2.80	\$3.10@3.25	\$2.60@2.75	\$2.60@2.75	\$3.05@3.20	\$2.85@3.00
Steam lump.....	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Egg.....	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Small egg or nut.....	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.60@2.75	3.05@3.20	2.85@3.00
Mine-run.....	2.40@2.55	2.40@2.55	2.85@3.00	2.45@2.60	2.45@2.60	2.70@2.85	2.60@2.75
Screenings.....	2.15@2.30	2.15@2.30	2.60@2.75	2.10@2.25	2.10@2.25	2.55@2.70	2.35@2.50

In its inquiry the committee ascertained that there are approximately 300 retail coal dealers in the county operating their own yards, and between 2500 and 3000 small wagon dealers who supply small consumers.

The Chicago retailers continue to face a serious shortage of certain grades of Eastern coals, particularly Pocahontas and anthracite. The Lake shipments of anthracite never were brisk this season, and with the close of navigation a few weeks hence there is no prospect of a large supply from this source. Embargoes are interfering with shipments from certain Ohio and West Virginia fields, so that the retailer, in the main, must depend on Illinois and Indiana shippers to supply the greater part of their requirements the balance of the fall and winter.

The Franklin County mines have enjoyed better running time the past week than for months, and the average daily production has been about 45,000 tons. The Williamson and Saline County shippers have been handicapped on account of cars and some mines operated less than 4 days. Car shortages seriously interfered with Indiana shipments also, while the Springfield, Illinois district was well supplied with cars due to the majority of the mines furnishing railroad fuel.

Quotations in the Chicago market are shown below, per net ton f.o.b. cars at mines:

MILWAUKEE

Market in an unsatisfactory condition. Wholesale rates are becoming irregular and retailers complain of a profitless margin. Soft coal scarce in the interior of the state.

The coal market continues in an unsatisfactory condition. Retailers have more orders for anthracite than they can take care of promptly, and Government price regulation makes their margin so small that they complain they cannot live. Varying wholesale prices also add to their troubles.

Anthracite is scarce. While receipts were heavier than last year, the supply on hand is smaller, because hard coal was bought up as fast as it was received. The Philadelphia & Reading Co., whose dock has practically been idle for the past year or two, has entered the trade again. Several cargoes of anthracite have been received within the past three weeks and more are coming.

The bituminous situation in Milwaukee is more favorable because of increasing supplies from Illinois, but a shortage of cars is hampering shipments to the interior where manufacturing plants are experiencing great difficulty in getting adequate supplies. The Milwaukee road recently assigned 250 cars to the coal trade and the management promises that within a month 1000 iron ore cars will be available for use. Cars are being loaded to 20 per cent. above their normal capacity. State Fuel Administrator Fitzgerald hints that the Government may order certain industries classed as "non-essentials" to close down, and that preference will be given to concerns engaged in the production of implements and supplies required in the prosecution of the war. The beet root sugar factories are in straits for coal and may be forced to shut down.

Coal continues to arrive by Lake in fairly good volume and if the season of navigation is not curtailed by stormy weather the stocks of both hard and soft coal may yet be augmented to a point which will insure a winter's supply of soft coal equal to that of last year, taking in consideration the continued influx from Illinois.

ST. LOUIS

St. Louis conditions are easy on account of mild weather. Carterville coal almost entirely eliminated from St. Louis, and all other Illinois coals exceedingly scarce. Both steam and domestic demand exceeds supply. No outside coal coming in. Car shortage continues with delayed movement. Colder weather will make situation critical.

The local situation continues easy because the weather has been mild. Several days during the past week in many homes there was no occasion to have heat.

There is a general tendency throughout this section to economize on fuel, even though the local situation is better than in many of the larger cities in the country. Even at that, many yards have been without coal for several days at a time, and small dealers are unable to get any coal at all. The larger yards, however, seem to be taking care of a fairly good tonnage, but this will be insignificant when colder weather comes.

Throughout the entire field a car shortage still continues. It is no more severe than in the past and in a general way the mines are getting about four days a week on all roads. The most aggravating part of the situation seems to be that the railroads are taking most of the coal, or at least the operators claim this.

The Government is also securing a large supply, and some operators claim that it is not distributing its tonnage equally, insisting that some producers ship a large tonnage, while others are not made to furnish their share.

In the past week the Government has notified some of the operators in this section to ship coal to retail dealers who have complained to Doctor Garfield's office about their failure to get fuel.

The movement of coal in a general way is not good. It seems to get tied up at Terminal centers, especially in and around St. Louis, while the unloading time at all yards per car is shown to be the quickest on record.

With the exception of a small strike at Lebanon, Ill., the entire southern Illinois field seems to be getting along peaceably. The miners at Lebanon went on strike because the operators refused to pay the new scale, effective Oct. 29.

There is little free coal and it is almost impossible to get lump, although screenings are easier. Many yards in the city are handling nothing now but Standard coal and are unable to get anywhere near their requirements.

The mines in the Standard field are beginning to show a larger tonnage, indicating that the miners are really putting forth an effort to produce. There are reports that the miners are doing this with the understanding that if they fail to make a good showing that there is some chance of the Government calling for registration of labor in the field and notifying each man to produce a certain amount of coal per day with a penalty for failure.

There has been practically no anthracite coming in the past week and no West Virginia smokeless, and nothing from the Arkansas field.

There has been no change in retail prices, although something is likely to happen shortly in view of the fact that the fuel administrations in different sections are taking hold of the coal problem and may make some changes. The St. Louis Committee had a meeting Saturday with the retailers of the city relative to conditions, and meetings of this character will continue from time to time, as the situation warrants.

The circular price here is as follows per net ton, f.o.b. mine:

	Williamson and Franklin County	Mt. Olive and Staunton	Standard
6-in. lump.....	\$2.65@2.80	\$2.65@2.80	\$2.65@2.80
3x6-in. egg.....	2.65@2.80	2.65@2.80	2.65@2.80
2x3-in. nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 2 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 3 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 4 nut.....	2.65@2.80	2.65@2.80	2.65@2.80
No. 5 nut.....	2.15@2.30	2.15@2.30	2.15@2.30
2-in. scrags.....	2.15@2.30	2.15@2.30	2.15@2.30
2-in. lump.....	2.65@2.80	2.65@2.80	2.65@2.80
3-in. lump.....	2.65@2.80	2.65@2.80	2.65@2.80
Steam egg.....	2.65@2.80	2.65@2.80	2.65@2.80
Mine run.....	2.40@2.55	2.40@2.55	2.40@2.55
Washed:			
No. 1.....	\$2.65@2.80	\$2.65@2.80	
No. 2.....	2.65@2.80	2.65@2.80	
No. 3.....	2.65@2.80	2.65@2.80	
No. 4.....	2.65@2.80	2.65@2.80	
No. 5.....	2.15@2.30	2.15@2.30	

Williamson & Franklin Co. rate is 87½c. Other fields, 72½c.